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Kathleen Fuller

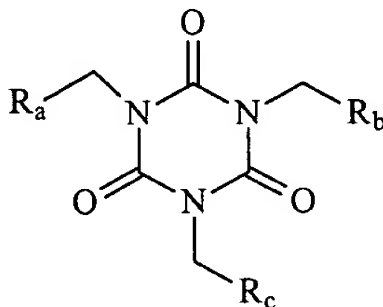
Eric Linnell

John Caive

All searchers are located in the library in CP3/4 3D62

We claim:

1. An electronic device comprising a component that comprises a polymer that comprises a monomer having the formula:



wherein each of  $R_a$ ,  $R_b$ ,  $R_c$  are independently selected from the group consisting of: a hydroxylated aliphatic side chain; an epoxy glycol; an ethoxy ether; a glycol ether; an adduct of glycol ether or a bisphenol glycol epoxy; an adduct of an epoxy glycol and an amine such as oxydianiline to form a hydroxylamine; an adduct of a glycol ether and a cycloaliphatic epoxy; and an adduct of hydroxyethyl side chain and a cycloaliphatic epoxy.

2. The device of claim 1, wherein the first polymer further comprises an oxybis(cyclopentene oxide) group.
3. The device of claim 1 wherein the first polymer further comprises an oxydianiline group.
4. The device of claim 1 wherein the first polymer further comprises a bisphenol A glycidyl Epoxy group.
5. The device of claim 1 wherein the first polymer further comprises a bis 3,4 epoxycyclohexylmethyl adipate group.
6. The device of claim 1 wherein the first polymer further comprises a trishydroxyethylisocyanurate.

Inventor: Iwamoto  
Serial No.: 09/543,628  
Art Unit: 1712

Patent  
Attmy Dkt. No. 100664.0001US1  
Honeywell Docket No. 30-5010 (4962)

7. The device of claim 1 wherein the electronic device further comprises an interface between the first polymer and a substrate.
8. The device of claim 1 wherein the electronic device comprises an interface between the first polymer and a second polymer.
9. The device of claim 8 wherein the first polymer and the second polymer are chemically different from one another.

**CHANGE OF FIRM NAME**

For your immediate reference, the firm of Fish & Associates, LLP – which may have been recently listed on the correspondence for the Applicant – has merged with the law firm of Rutan & Tucker, LLP to collectively become the law firm of Rutan & Tucker, LLP as of January 1, 2002. Completed Change of Correspondence Address forms for this matter, showing the new address listed below, will be submitted this month to the USPTO. New Power of Attorney forms will not need to be filed, however, since the Attorneys of Record have not changed through this merger.

## NOVEL POLYMER/SUBSTRATE AND POLYMER/POLYMER INTERFACES AND METHODS OF MODELING AND FORMING SAME

### Field of the Invention

5           The field of the invention is electronic devices and components of electronic devices, including electronic packaging materials, and materials involved in electronic packaging structures such as patches, preforms, and printed circuit boards and their materials.

### Background

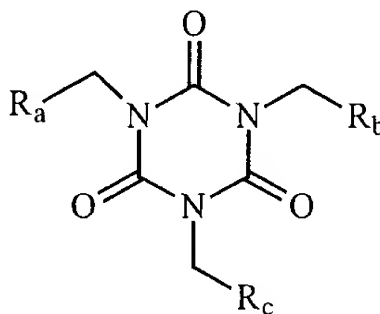
10           Electronic devices and their components, including solder points and other interfaces, packaging materials, and printed circuit board(s), are advantageously designed to withstand at least a minimum amount of wear and tear. To determine and subsequently improve the reliability, researchers usually perform a battery of component level testing, including temperature testing, stress testing, and moisture testing.

15           From the mechanistic standpoint, reliability can be measured by investigating a combination of elastic, plastic, and viscoelastic behaviors of materials. For example, solder ball/underfill interface failure under may originate from a combination of plastic deformation of the solder ball and viscoelastic flow of the underfill. From that perspective reliability can be thought of as a multiple interfacial interaction with, for example, the solder-solder, polymer-polymer, polymer-solder and the associated stress/strain relationships contributing to the  
20           predicted failure.

          However, for the chemist looking at polymer-involved interfaces, the determination of failure is not that simple. Failure can occur both on a relatively large level, for example from the multiple interfaces, as defined by the engineer, and also on a much smaller level from specific  
25           contributions at the atomic and molecular level. To the chemist it is the investigation of the structure at the molecular and even atomic levels that will lead to solutions of the problem. The

## ABSTRACT

A polymer/substrate and/or polymer/polymer interface is selected from candidate interfaces using a model that manipulates adhesive characteristics and strain variables, and estimates of their effect on candidate interfaces. The model is preferably used to evaluate properties such as size, shape, and bond geometries. Preferred models involve an atomic level visual representation of a first polymer adhered to either a second polymer or a substrate at the interface by a force, inclusion of strain-related information, and generating data from modeling effects on the interface of strain cycles resulting from intermittently applied force. Particularly preferred interfaces include a polymer having a monomer of the formula:



wherein  $R_a$ ,  $R_b$ ,  $R_c$  comprises a hydroxylated aliphatic side chain; an epoxy glycol; an ethoxy ether; a glycol ether; an adduct of glycol ether and a bisphenol glycol epoxy; an adduct of an epoxy glycol and an amine such as oxydianiline to form a hydroxylamine; an adduct of a glycol ether and a cycloaliphatic epoxy such as oxybiscyclopentene oxide; an adduct of hydroxyethyl side chain and a cycloaliphatic epoxy such as oxybiscyclopentene.

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STRUCTURE FILE UPDATES: 15 MAY 2002 HIGHEST RN 416838-75-0  
DICTIONARY FILE UPDATES: 15 MAY 2002 HIGHEST RN 416838-75-0

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for more information. See STNote 27, Searching Properties in the CAS  
Registry File, for complete details:  
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

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(FILE 'HOME' ENTERED AT 21:51:06 ON 17 MAY 2002)

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ACT FEE628/A

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L2 STR  
L3 2211 SEA FILE=REGISTRY SSS FUL L2 AND L1  
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L4 STR

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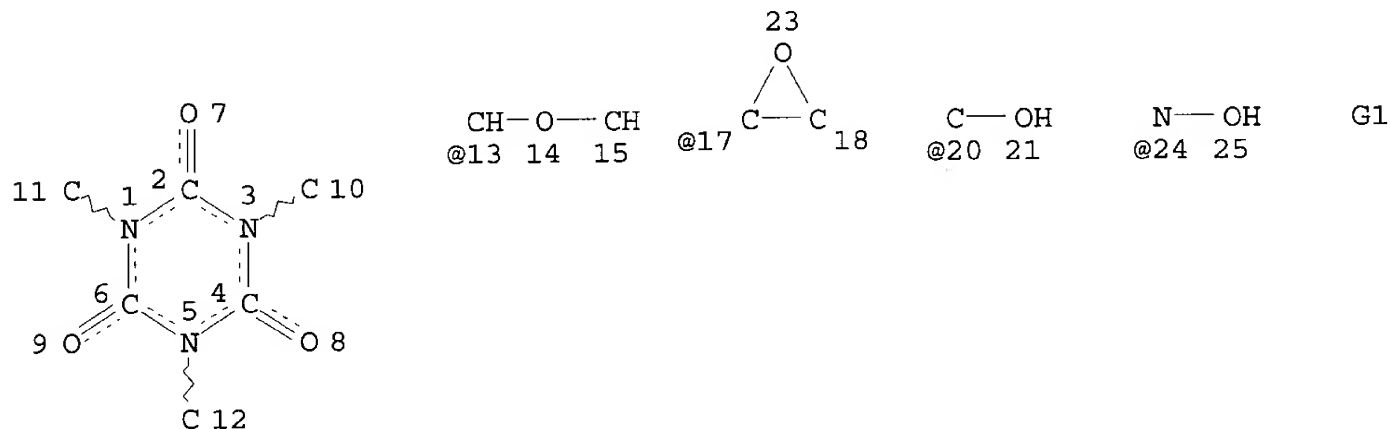
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 L15 32 S L13  
 L16 QUE 76/SC,SX  
 L17 520528 S SOLDER? OR BUMP? OR PAD OR PADS OR VIA OR VIAS  
 L18 173813 S PACKAG? OR PKG# OR (PCB# AND 76/SC,SX) OR (PRINT? OR EL  
 L19 1 S L14 AND (L16 OR L17 OR L18)  
 L20 9 S L15 AND (L16 OR L17 OR L18)  
 L21 1674 S L3  
 L22 245 S L21 AND L16  
 L23 132 S L21 AND L17  
 L24 137 S L21 AND L18  
 L25 51 S L22 AND L23 AND L24  
 L26 10 S L19 OR L20  
 L27 24 S L14 NOT L26  
 L28 23 S L15 NOT (L26 OR L27)  
 L29 47 S L25 NOT (L26 OR L27 OR L28)

FILE 'REGISTRY' ENTERED AT 22:35:36 ON 17 MAY 2002

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L1 SCR 2043  
 L2 STR



Page 1-A

27

Page 1-B

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DEFAULT ECLEVEL IS LIMITED

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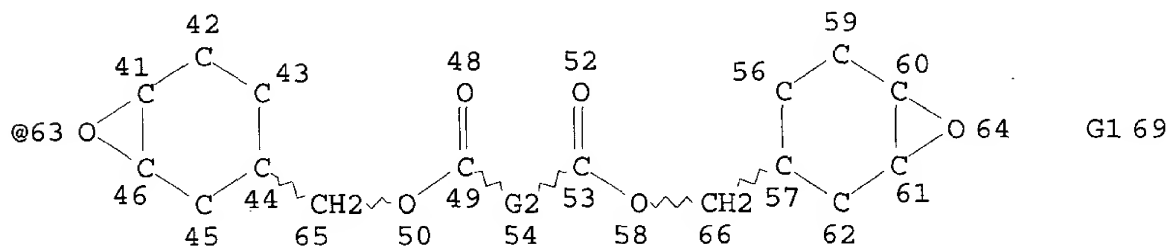
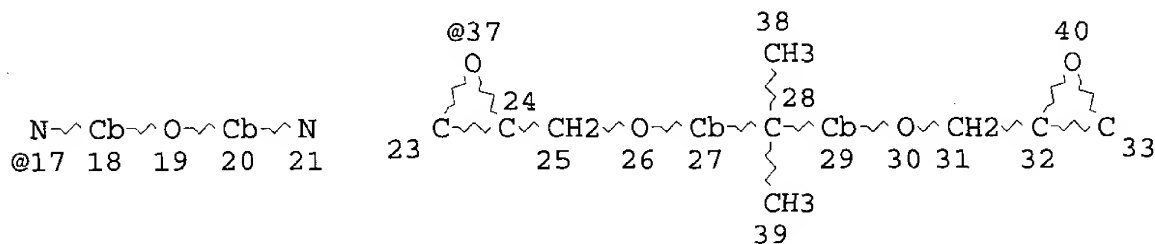
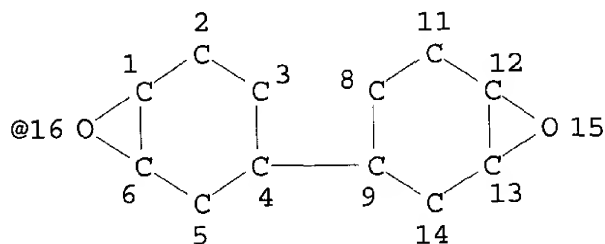
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NUMBER OF NODES IS 23

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L4 STR



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NUMBER OF NODES IS 58

STEREO ATTRIBUTES: NONE

L6 77 SEA FILE=REGISTRY SUB=L3 SSS FUL L2 AND L4 AND L1

100.0% PROCESSED 2211 ITERATIONS  
SEARCH TIME: 00.00.02

77 ANSWERS

=> file hca

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=> d l26 1-10 cbib abs hitstr hitind

L26 ANSWER 1 OF 10 HCA COPYRIGHT 2002 ACS

136:295898 Transparent epoxy resin compositions and photoconductor devices sealed therewith. Komori, Shinji; Akiyama, Masahito; Segawa, Satoshi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002105291 A2 20020410, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-225081 20010725. PRIORITY: JP 2000-227898 20000727.

AB The compns., showing excellent **solder** crack resistance and low water absorption, comprise .gtoreq.2 (/mol.)-epoxy-bearing epoxy resins, acid anhydrides as curing agents, curing accelerators R1R2R3R4N+X- (R1-4 = aryl, alkyl, H; X = aliph. or arom. carboxylic

acid residue), and powd. glass fillers which satisfy  $|\Delta n|$   
 $\leq 0.01$  ( $|\Delta n|$  = difference in  $n$  between the fillers and  
 cured products of the above compns. excluding the fillers). Thus, a  
 compn. of Epikote 1001 (bisphenol A epoxy resin) 54, Rikacid MH 700  
 (hexahydrophthalic anhydride/methylhexahydrophthalic anhydride  
 mixt.) 17, triethylmethylammonium propionate 2, SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub>-CaO glass  
 powder ( $|\Delta n| \leq 0.005$ ) 25 parts was transfer molded with a 16-pin  
 DIP IC and cured to give a specimen showing excellent wire-breaking  
 resistance in a pressure-cooker bias test.

IT 409114-54-1P

(epoxy resin compns. contg. quaternary ammonium carboxylates as  
 catalysts for photoconductor **packages**)

RN 409114-54-1 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-,  
 polymer with hexahydro-1,3-isobenzofurandione, hexahydro-5-methyl-  
 1,3-isobenzofurandione, 2,2'-[methylenebis(phenyleneoxymethylene)]bi  
 s[oxirane] and 2,2'-[(1-methylethylidene)bis(4,1-  
 phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

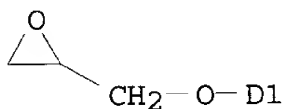
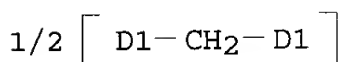
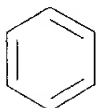
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CRN 39817-09-9

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CCI IDS

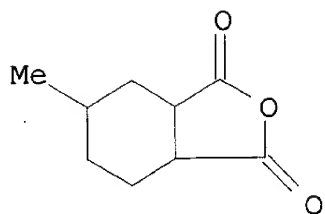
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CRN 19438-60-9

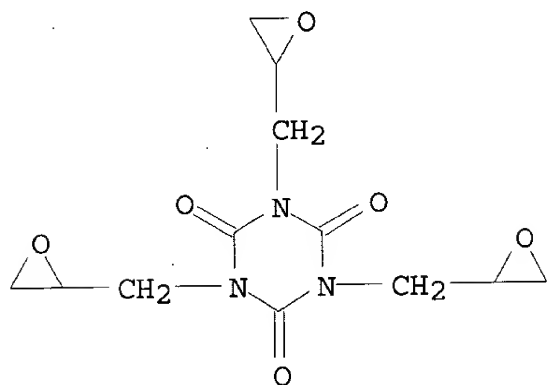
CMF C9 H12 O3



CM 3

CRN 2451-62-9

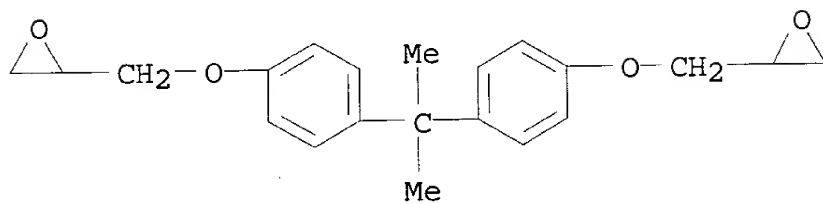
CMF C12 H15 N3 O6



CM 4

CRN 1675-54-3

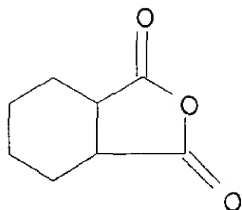
CMF C21 H24 O4



CM 5

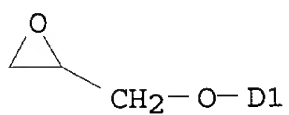
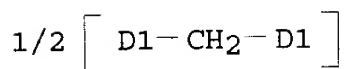
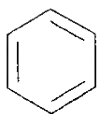
CRN 85-42-7

CMF C8 H10 O3



- IC ICM C08L063-00  
ICS C08G059-58; C08K003-40; C08K007-20; H01L023-29; H01L023-31
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 37, 76
- ST transparent epoxy photoconductor **package** ammonium carboxylate; quaternary ammonium carboxylate catalyst epoxy photoconductor **package**; glass refractive index transparent epoxy photoconductor **package**
- IT Epoxy resins, uses  
(acid anhydride-crosslinked; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT Aluminosilicate glasses  
(calcium aluminosilicate, spherical, fillers; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT Quaternary ammonium compounds, uses  
(carboxylates, curing accelerators; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT Anhydrides  
(crosslinking agents; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT Electronic **packaging** materials  
(epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT Glass powders  
(fillers; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT Photoconductors  
(**packages** for; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT Epoxy resins, uses  
(phenolic, novolak, anhydride-crosslinked; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT Crosslinking catalysts  
(quaternary ammonium carboxylates; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)

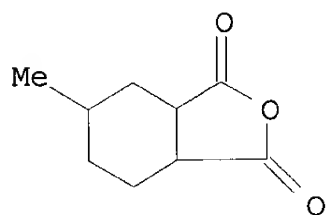
- IT 129710-09-4, Triethylmethyammonium phthalate, uses 142062-24-6, Triethylmethyammonium benzoate 408497-86-9 408497-87-0 (curing accelerators; epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- IT 380612-85-1P 404578-35-4P, Celloxide 2021P-Rikacid TH-TEPIC-S copolymer 408497-88-1P **409114-54-1P** 409114-55-2P (epoxy resin compns. contg. quaternary ammonium carboxylates as catalysts for photoconductor **packages**)
- L26 ANSWER 2 OF 10 HCA COPYRIGHT 2002 ACS
- 136:248711 Transparent epoxy resin compositions and optoelectronic semiconductor devices sealed therewith. Komori, Shinji; Akiyama, Masahito; Segawa, Satoshi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002080698 A2 20020319, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-189374 20010622. PRIORITY: JP 2000-195183 20000628.
- AB The compns., showing water absorption .ltoreq.2.0% and light transmittance (400 nm, thickness 1 mm) .gtoreq.80%, comprise (A) epoxy resins contg. .gtoreq.2 epoxy groups, (B) acid anhydride curing agents, (C) curing accelerators, and (D) 5-70% glass particle fillers contg. SiO<sub>2</sub>, CaO, and Al<sub>2</sub>O<sub>3</sub> with av. particle size 5-100 .mu.m, light transmittance .gtoreq.80%, and difference of refractive index between D and cured products without D .ltoreq.0.01. Thus, a compn. contg. Epikote 1001 (bisphenol A epoxy resin) 24, Rikacid MH 700 (mixt. of hexahydrophthalic anhydride and methylhexahydrophthalic anhydride) 7.5, U-CAT SA 102 [1,8-diazabicyclo[5.4.0]undec-7-ene 2-ethylhexanoic acid salt] 2, and glass fillers (av. particle size 12 .mu.m, light transmittance 89%) 65 parts was transfer-molded to give a test piece showing light transmittance 84%, water absorption 0.72%, Tg 122.degree., and good **solder** crack resistance.
- IT **404871-29-0P**  
(transparent epoxy resin compns. for **packaging** optoelectronic semiconductor devices)
- RN 404871-29-0 HCA
- CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, polymer with hexahydro-5-methyl-1,3-isobenzofurandione, 2,2'-[methylenebis(phenyleneoxymethylene)]bis[oxirane] and 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)
- CM 1
- CRN 39817-09-9
- CMF C19 H20 O4
- CCI IDS
- CDES 8:ID



CM 2

CRN 19438-60-9

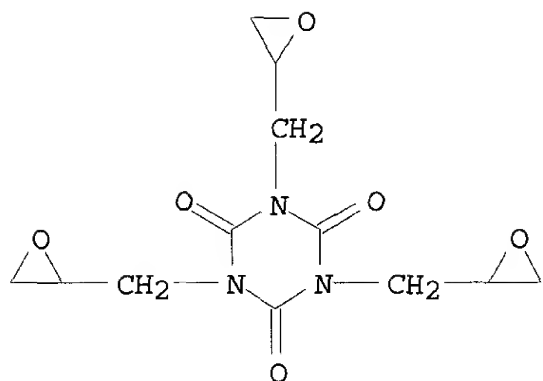
CMF C9 H12 O3



CM 3

CRN 2451-62-9

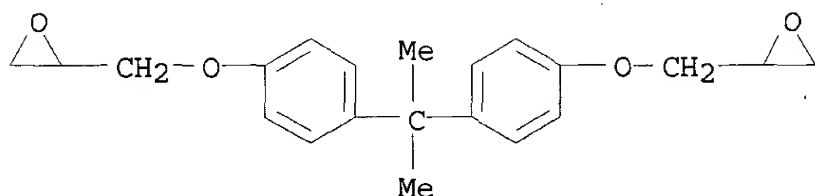
CMF C12 H15 N3 O6



CM 4

CRN 1675-54-3

CMF C21 H24 O4



- IC ICM C08L063-00  
ICS C08G059-20; C08G059-42; C08G059-50; C08K007-20; H01L023-29;  
H01L023-31
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76
- ST epoxy resin transparent optoelectronic semiconductor  
**packaging**; bisphenol epoxy hexahydrophthalic  
methylnhexahydrophthalic anhydride resin; glass filler silica alumina  
calcium oxide epoxy; diazabicyclo undecene ethylhexanoate salt  
crosslinking catalyst
- IT Epoxy resins, uses  
(acid anhydride-crosslinked; transparent epoxy resin compns. for  
**packaging** optoelectronic semiconductor devices)
- IT Amidines  
(cyclic, bicyclic, crosslinking catalyst; transparent epoxy resin  
compns. for **packaging** optoelectronic semiconductor  
devices)
- IT Glass, uses  
(fillers; transparent epoxy resin compns. for **packaging**  
optoelectronic semiconductor devices)
- IT Crosslinking catalysts  
Electronic **packaging** materials  
Optoelectronic semiconductor devices

Transparent materials

Water-resistant materials

(transparent epoxy resin compns. for **packaging**  
optoelectronic semiconductor devices)

IT 693-98-1, 2-Methylimidazole 6674-22-2, 1,8-  
Diazabicyclo[5,4,0]undecene-7 33918-18-2, U-CAT SA 102  
(crosslinking catalyst; transparent epoxy resin compns. for  
**packaging** optoelectronic semiconductor devices)

IT 1305-78-8, Calcium oxide, uses 1344-28-1, Alumina, uses  
7631-86-9, Silica, uses  
(filler in glass particles; transparent epoxy resin compns. for  
**packaging** optoelectronic semiconductor devices)

IT 116334-13-5P, Epikote 1001-Rikacid MH 700 copolymer 404578-35-4P,  
Celloxide 2021P-Rikacid TH-Tepic-S copolymer **404871-29-0P**  
404871-30-3P, EOCN 102S75-Rikacid MH 700 copolymer 404871-31-4P  
(transparent epoxy resin compns. for **packaging**  
optoelectronic semiconductor devices)

L26 ANSWER 3 OF 10 HCA COPYRIGHT 2002 ACS

133:164955 Epoxy resin paste adhesive compositions and semiconductor  
devices using them. Yamada, Kazuhiko; Katayama, Yoji (Hitachi  
Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000226432 A2  
20000815, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
1999-29889 19990208.

AB The compns. comprise (A) epoxy resins, (B) curing agents, (C)  
fillers, and (D) epoxy compds. comprising glycidyl and/or  
glycidoxymethyl (no. of methylene 1-5) esters of isocyanuric acid.  
Thus, bisphenol F epoxy resin (YDF 170) 8, bisphenol A epoxy resin  
(YL 980) 8, novolak resin (H 1) soln. (novolak:diluent = 1:2) 5, Ag  
powder (TCG 1) 72, isocyanurate-contg. epoxy compd. (EX 301) 4, a  
curing catalyst (2P4MHZ) 1, and a diluent (PP 101) 12 parts were  
kneaded to give a paste, showing good adhesion with Cu and Si and  
**solder** crack resistance.

IT **288145-70-0P**  
(epoxy resin paste adhesive compns. for semiconductor devices)

RN 288145-70-0 HCA

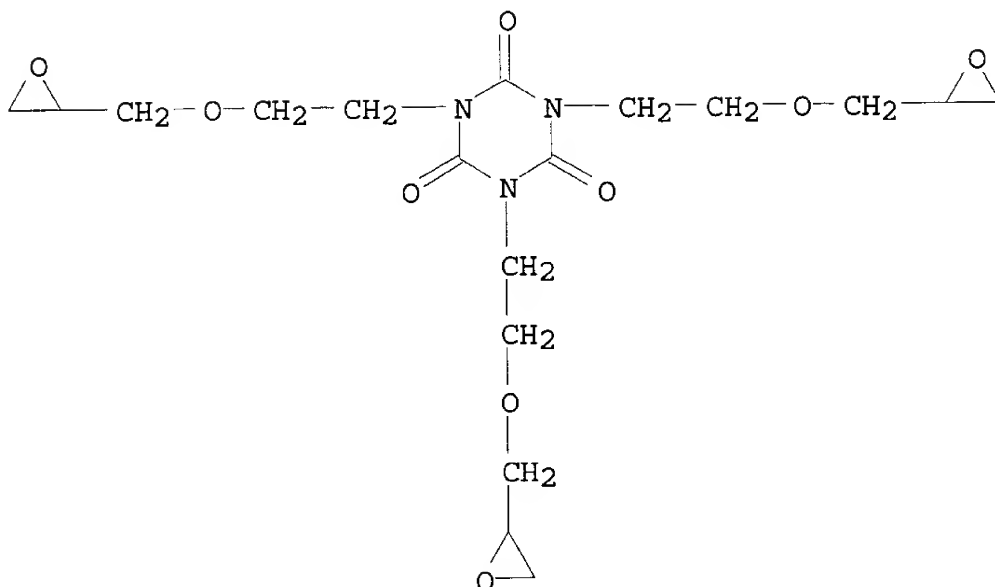
CN Formaldehyde, polymer with (chloromethyl)oxirane,  
methylenebis[phenol], 2,2'-[(1-methylethylidene)bis(4,1-  
phenyleneoxymethylene)]bis[oxirane], phenol and 1,3,5-tris[2-  
(oxiranylethoxy)ethyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI)  
(CA INDEX NAME)

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CRN 108673-46-7

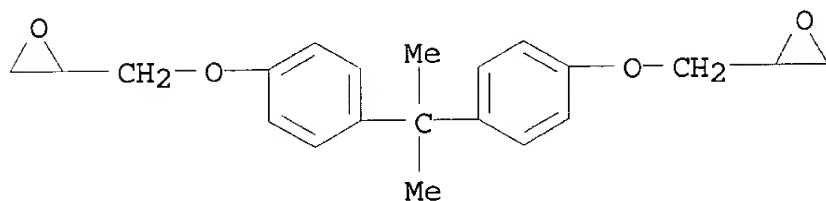
CMF C18 H27 N3 O9





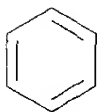
CM 2

CRN 1675-54-3  
CMF C21 H24 O4

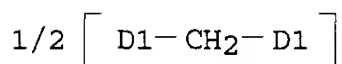


CM 3

CRN 1333-16-0  
CMF C13 H12 O2  
CCI IDS  
CDES 8:ID



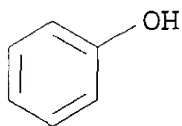
D1-OH



CM 4

CRN 108-95-2

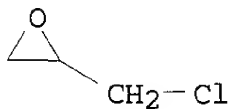
CMF C6 H6 O



CM 5

CRN 106-89-8

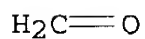
CMF C3 H5 Cl O



CM 6

CRN 50-00-0

CMF C H2 O



IC ICM C08G059-20

ICS C08K003-00; C08L063-00; H01L021-52

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST isocyanurate phenolic epoxy adhesive silicon copper; semiconductor epoxy adhesive **solder** crack resistance

IT **288145-70-0P**

(epoxy resin paste adhesive compns. for semiconductor devices)

L26 ANSWER 4 OF 10 HCA COPYRIGHT 2002 ACS

132:23625 Epoxy resin compositions and optical semiconductor devices sealed therewith. Yamanaka, Hiroshi; Nakasuji, Ikuo (Matsushita Electric Works, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11335524 A2 19991207 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-143983 19980526.

AB The compns. contain epoxy resins, curing agents, curing accelerators, and mold release agents  $\text{Me}(\text{CH}_2\text{CH}_2)_m(\text{OCH}_2\text{CH}_2)_n\text{OPO}(\text{OH})_2$  (I) or  $[\text{Me}(\text{CH}_2\text{CH}_2)_r(\text{OCH}_2\text{CH}_2)_s\text{O}]_2\text{PO}(\text{OH})$  ( $m, r = 1-30$ ;  $n, s = 1-50$ ) contg. 40-90%  $\text{OCH}_2\text{CH}_2$  units. Thus, a semiconductor device sealed with a compn. (light transmittance 92% at 940 nm) contg. epoxy resin 100, hexahydrophthalic anhydride 85, and I 1.5 parts showed good mold releasability after 100 molding cycles and good moisture resistance.

IT **251563-51-6P**

(epoxy resin compns. for sealing optical semiconductor devices with good mold releasability)

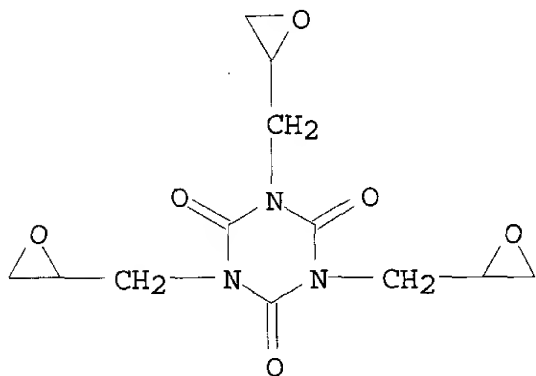
RN 251563-51-6 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, polymer with hexahydro-1,3-isobenzofurandione and 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

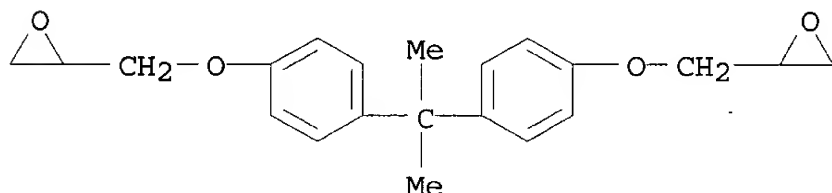
CMF C12 H15 N3 O6



CM 2

CRN 1675-54-3

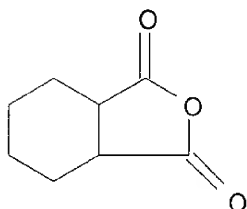
CMF C21 H24 O4



CM 3

CRN 85-42-7

CMF C8 H10 O3



- IC ICM C08L063-00  
ICS C08L063-00; C08K005-521; C08L071-02; H01L023-29; H01L023-31;  
H01L031-02; H01L033-00
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76
- ST epoxy resin transparency **packaging** semiconductor device;  
mold releasability alkyl polyoxyethylene phosphate epoxy; moisture  
resistance epoxy resin electronic **packaging**
- IT Electronic **packaging** materials  
Semiconductor devices  
Transparent materials  
Water-resistant materials  
(epoxy resin compns. for sealing optical semiconductor devices  
with good mold releasability)
- IT 28185-25-3P 251563-50-5P **251563-51-6P**  
(epoxy resin compns. for sealing optical semiconductor devices  
with good mold releasability)
- L26 ANSWER 5 OF 10 HCA COPYRIGHT 2002 ACS  
132:12986 Epoxy resin compositions for use in the **packaging** of  
optical semiconductor devices and the semiconductor devices.  
Yamanaka, Hiroshi; Nakasuji, Ikuo (Matsushita Electric Works, Ltd.,  
Japan). Jpn. Kokai Tokkyo Koho JP 11335528 A2 19991207 Heisei, 6  
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-144763  
19980526.
- AB The compns. with good transparency and moisture resistance, comprise  
epoxy resins, curing agents, curing accelerators and release agents

which contain 25-90% ethoxylated montan wax. Thus, a **packaging** compn. contained Epikote 827 (epoxy resin) 100, hexahydrophthalic anhydride 85, methyltriphenylphosphonium bromide 0.2 and the release agent 1.5 part.

IT 251563-51-6, Epikote 827-hexahydrophthalic anhydride-TEPIC copolymer

(epoxy resin compns. for use in **packaging** of optical semiconductor devices and semiconductor devices)

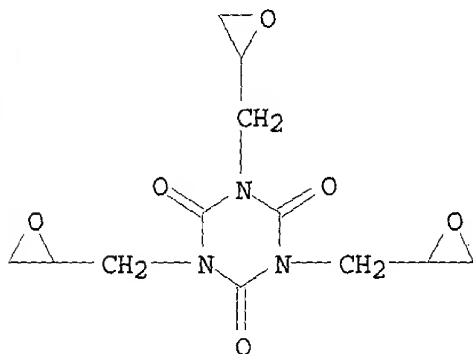
RN 251563-51-6 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, polymer with hexahydro-1,3-isobenzofurandione and 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

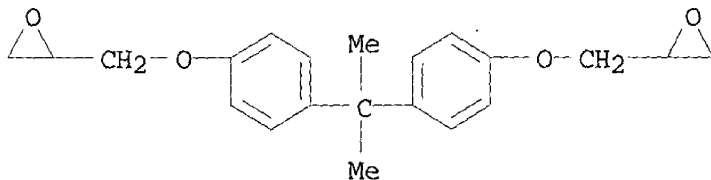
CMF C12 H15 N3 O6



CM 2

CRN 1675-54-3

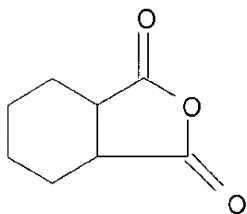
CMF C21 H24 O4



CM 3

CRN 85-42-7

CMF C8 H10 O3



- IC ICM C08L063-00  
ICS C08K005-04; H01L021-56
- CC 38-3 (Plastics Fabrication and Uses)
- ST moisture resistance epoxy resin semiconductor **packaging**;  
optical semiconductor **packaging** epoxy resin release agent;  
ethoxylate montan wax release agent electronic **packaging**  
compn
- IT Electronic **packaging** materials  
Parting materials  
(epoxy resin compns. for use in **packaging** of optical  
semiconductor devices and semiconductor devices)
- IT Epoxy resins, uses  
(epoxy resin compns. for use in **packaging** of optical  
semiconductor devices and semiconductor devices)
- IT Montan wax  
(ethoxylated, release agent; epoxy resin compns. for use in  
**packaging** of optical semiconductor devices and  
semiconductor devices)
- IT Polyoxyalkylenes, uses  
(montan wax deriv., release agent; epoxy resin compns. for use in  
**packaging** of optical semiconductor devices and  
semiconductor devices)
- IT Semiconductor device fabrication  
(optical; epoxy resin compns. for use in **packaging** of  
optical semiconductor devices and semiconductor devices)
- IT 28185-25-3, Epikote 827-hexahydrophthalic anhydride copolymer  
251563-50-5, Epikote 827-hexahydrophthalic anhydride-VG 3101H  
copolymer **251563-51-6**, Epikote 827-hexahydrophthalic  
anhydride-TEPIC copolymer  
(epoxy resin compns. for use in **packaging** of optical  
semiconductor devices and semiconductor devices)
- IT 25322-68-3D, montan wax deriv.  
(release agent; epoxy resin compns. for use in **packaging**  
of optical semiconductor devices and semiconductor devices)

L26 ANSWER 6 OF 10 HCA COPYRIGHT 2002 ACS

132:12985 Epoxy resin compositions for use in the **packaging** of  
optical semiconductor devices and the semiconductor devices.  
Yamanaka, Hiroshi; Nakasuji, Ikuo (Matsushita Electric Works, Ltd.,  
Japan). Jpn. Kokai Tokkyo Koho JP 11335523 A2 19991207 Heisei, 6  
pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-143982  
19980526.

AB The compns. with good transparency and moisture resistance, comprise epoxy resins, curing agents, curing accelerators and release agents which are compds. bearing  $\text{CH}_3\text{CHMe}(\text{CH}_2\text{CH}_2)_m(\text{OCH}_2\text{CH}_2)_n\text{OH}$  ( $m = 1030$ ;  $n = 1-50$ ) and  $\text{OCH}_2\text{CH}_2$  groups at a structural unit ratio 40-90%. Thus, a **packaging** compn. contained Epikote 827 (epoxy resin) 100, hexahydrophthalic anhydride 85, methyltriphenylphosphonium bromide 0.2 and the release agent 1.2 part.

IT 251563-51-6

(epoxy resin compns. for use in **packaging** of optical semiconductor devices and semiconductor devices)

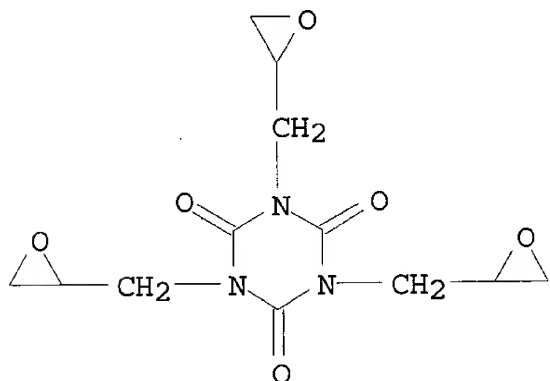
RN 251563-51-6 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, polymer with hexahydro-1,3-isobenzofurandione and 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

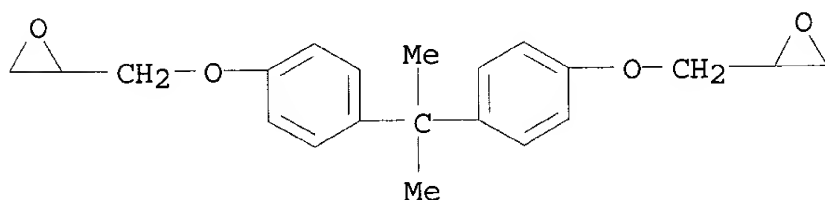
CMF C12 H15 N3 O6



CM 2

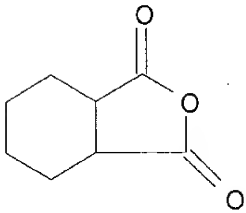
CRN 1675-54-3

CMF C21 H24 O4



CM 3

CRN 85-42-7  
CMF C8 H10 O3



- IC ICM C08L063-00  
ICS C08L063-00; C08K005-06; C08L071-02; H01L023-29; H01L023-31;  
H01L031-02; H01L033-00
- CC 38-3 (Plastics Fabrication and Uses)
- ST moisture resistance epoxy resin semiconductor **packaging**;  
optical semiconductor **packaging** epoxy resin release agent;  
polyoxyethylene ether release agent electronic **packaging**  
compn
- IT Electronic **packaging** materials  
Parting materials  
(epoxy resin compns. for use in **packaging** of optical  
semiconductor devices and semiconductor devices)
- IT Epoxy resins, uses  
(epoxy resin compns. for use in **packaging** of optical  
semiconductor devices and semiconductor devices)
- IT Polyoxyalkylenes, uses  
(long-chain alkyl ether, release agent; epoxy resin compns. for  
use in **packaging** of optical semiconductor devices and  
semiconductor devices)
- IT Semiconductor device fabrication  
(optical; epoxy resin compns. for use in **packaging** of  
optical semiconductor devices and semiconductor devices)
- IT 28185-25-3 251563-50-5 **251563-51-6**  
(epoxy resin compns. for use in **packaging** of optical  
semiconductor devices and semiconductor devices)
- IT 25322-68-3D, long-chain alkyl ether  
(release agent; epoxy resin compns. for use in **packaging**  
of optical semiconductor devices and semiconductor devices)
- L26 ANSWER 7 OF 10 HCA COPYRIGHT 2002 ACS  
121:217648 Photosensitive aqueous polymer compositions. Shibata, Joji;  
Yada, Mitsuhiro; Hanyuda, Toshiaki (Showa Highpolymer, Japan). Jpn.  
Kokai Tokkyo Koho JP 05140251 A2 19930608 Heisei, 7 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 1991-91215 19910329.
- AB The title compns., useful for **solder**-resist inks of  
**printed circuit boards** developable with  
dild. basic aq. solns. contain (A) aq. polymer solns. with acid  
value 50-100 obtained by partially salting CO<sub>2</sub>H of acid-attached  
epoxy (meth)acrylates, [prepd. from epoxy (meth)acrylates and  
(un)satd. polybasic acid anhydrides] with org. amines or aq. NH<sub>3</sub>,



(B) H<sub>2</sub>O and/or photopolymerizable monomers, (C) photoinitiators, and (D) epoxy resins. Thus, AER 331L 189, acrylic acid 72, and maleic anhydride 98 g were heated in the presence of hydroquinone and dimethylbenzylamine and then with 153 g H<sub>2</sub>O and 50 g NEt<sub>3</sub> to obtain a transparent soln. with acid value 99. Then, 50 parts of the soln. was mixed with dipentaerythritol hexaacrylate 4, phthalocyanine green 0.5, a leveling agent 0.5, H<sub>2</sub>O 4, talc 20, triglycidyl isocyanurate 5, benzoguanamine 0.5, and Darocur 1173 2 parts to give a **solder**-resist ink, which was applied on a Cu-clad laminate, irradiated with a Hg lamp, soaked in 1% aq. Na<sub>2</sub>CO<sub>3</sub> for 120 s, and post-cured at 150.degree. for 30 min to give a film showing good **solder** resistance, cross-cut adhesion 100/100, elec. insulating resistance 2.0 .times. 10<sup>12</sup> .OMEGA., and good development properties.

IT **156845-51-1D**, triethylamine salt  
(**solder**-resist inks contg., for **printed**  
**elec. circuit** manuf.)

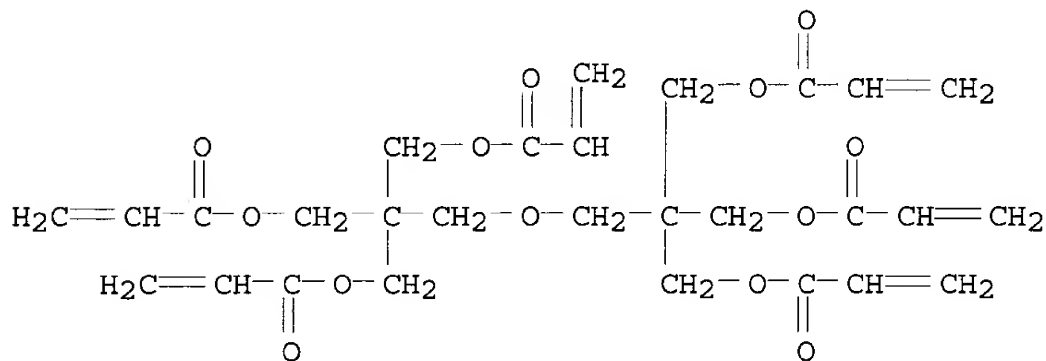
RN 156845-51-1 HCA

CN 2-Propenoic acid, polymer with 2,5-furandione, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane], 2-[[3-[(1-oxo-2-propenyl)oxy]-2,2-bis[[[(1-oxo-2-propenyl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 29570-58-9

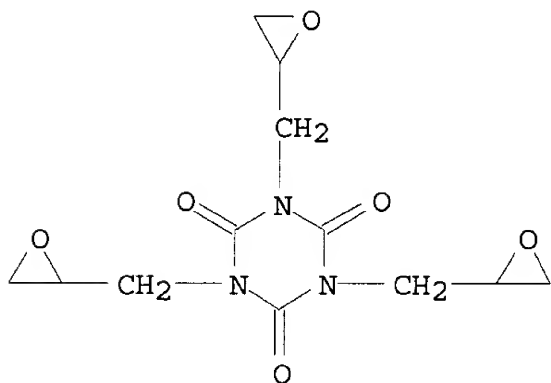
CMF C28 H34 O13



CM 2

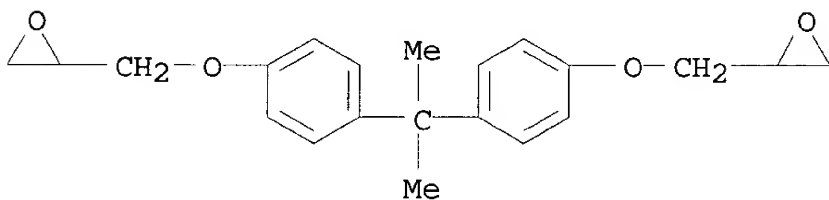
CRN 2451-62-9

CMF C12 H15 N3 O6



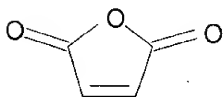
CM 3

CRN 1675-54-3  
CMF C21 H24 O4



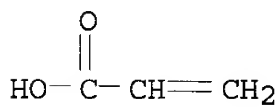
CM 4

CRN 108-31-6  
CMF C4 H2 O3



CM 5

CRN 79-10-7  
CMF C3 H4 O2



IC ICM C08F299-02

- ICS C08F002-44; C08F002-48; C08G059-14; C08G059-40; C09D011-10;  
G03C001-00; G03F007-027; H05K003-06
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 38, 76
- ST epoxy acrylate resin ink photosensitive; **solder** resist ink  
epoxy acrylate; **elec circuit solder**  
resist ink
- IT Epoxy resins, uses  
(acrylates, **solder**-resist inks contg., for  
**printed elec. circuit** manuf.)
- IT **El ctric circuits**  
(**printed**, manuf. of, **solder**-resist inks for,  
contg. acrylate epoxy resin salts)
- IT **Soldering**  
(resists, based on acrylate epoxy resin salts for **printed**  
**elec. circuit** manuf.)
- IT 85-43-8D, polymers with acrylic monomers and unsatd. epoxy resins,  
triethylamine salt 108-31-6D, 2,5-Furandione, polymers with  
acrylic monomers and unsatd. epoxy resins, triethylamine salt  
999-61-1D, polymers with acrylic monomers and unsatd. epoxy resins,  
triethylamine salt 1675-54-3D, polymers with acrylic monomers and  
unsatd. epoxy resins, triethylamine salt 87912-85-4D, Epiclon N  
680, polymers with acrylic monomers and unsatd. epoxy resins,  
triethylamine salt **156845-51-1D**, triethylamine salt  
156845-52-2D, triethylamine salt 159095-01-9D, polymers with  
acrylic monomers and unsatd. epoxy resins, triethylamine salt  
159095-02-0D, polymers with acrylic monomers and unsatd. epoxy  
resins, triethylamine salt  
(**solder**-resist inks contg., for **printed**  
**lec. circuit** manuf.)
- L26 ANSWER 8 OF 10 HCA COPYRIGHT 2002 ACS
- 112:218305 Manufacture of heat-resistant triazine ring-containing epoxy  
resin prepreg laminates. Watanabe, Takashi; Yokozawa, Shunya; Sato,  
Shunichi (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo  
Koho JP 01225641 A2 19890908 Heisei, 4 pp. (Japanese). CODEN:  
JKXXAF. APPLICATION: JP 1988-53055 19880307.
- AB Sol. reaction products of triglycidyl isocyanurate (I) with  
bisphenol A or tetrabromobisphenol A (II), prepd. in org. solvents  
at 90-160.degree., are added to epoxy resins to give varnishes for  
the manuf. of title laminates useful as **printed**  
**circuit boards**. Thus, Tepic (I) and Fire Guard  
2000 (II) were dissolved in hot ethylene glycol monomethyl ether,  
and heated at 120-144.degree. in the presence of  
2-ethyl-4-methylimidazole (III) for 2 h to give a copolymer (IV)  
which stayed in soln. at room temp. IV was mixed with Araldite 8011  
(brominated bisphenol A epoxy resin), dicyandiamide, III, MEK, and  
methyl glycol to give a varnish, which was applied to glass cloth  
and dried to form prepregs. A Cu-clad laminate prepd. from the  
prepregs was etched to give a **printed circuit**  
**board** that showed no damage when placed in a pressure cooker

at 121.degree. for 4 h, then on a **sold r** bath at 260.degree. for 30 s, whereas a control prepd. similarly without the IV showed severe blistering.

IT 126564-70-3P

(manuf. of, as heat-resistant prepreg laminates, from sol. prepolymer varnishes)

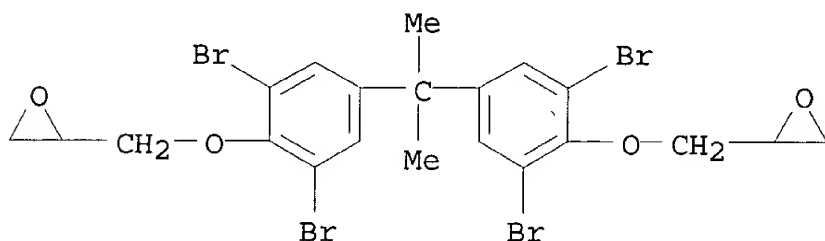
RN 126564-70-3 HCA

CN Guanidine, cyano-, polymer with 4,4'-(1-methylethylidene)bis[2,6-dibromophenol], 2,2'-[(1-methylethylidene)bis[(2,6-dibromo-4,1-phenylene)oxymethylene]]bis[oxirane] and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 3072-84-2

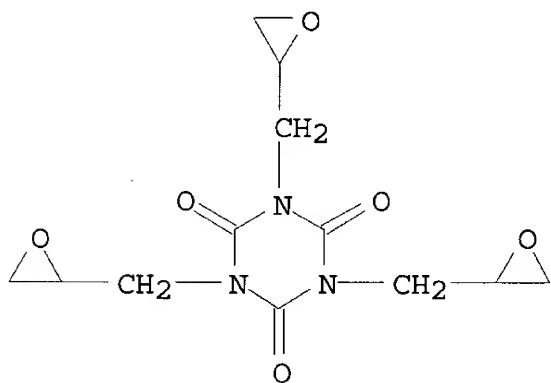
CMF C21 H20 Br4 O4



CM 2

CRN 2451-62-9

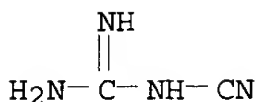
CMF C12 H15 N3 O6



CM 3

CRN 461-58-5

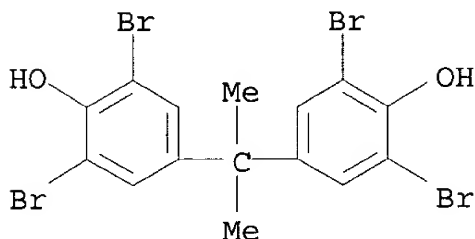
CMF C2 H4 N4



CM 4

CRN 79-94-7

CMF C15 H12 Br4 O2



IC ICM C08J005-24

ICS B32B015-08; B32B027-04

CC 38-2 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST heat resistance epoxy resin laminate; **printed circuit** epoxy resin varnish

IT Heat-resistant materials

(dielec., **circuit board** laminates, from prepregs made with epoxy resin varnishes contg. sol. triglycidyl isocyanurate adducts)

IT Electric insulators and Dielectrics

(heat-resistant, **circuit board** laminates, from prepregs made with epoxy resin varnishes contg. sol. triglycidyl isocyanurate adducts)IT **Electric circuits****(printed, boards**, manuf. of, from prepregs made with epoxy resin varnishes contg. sol. triglycidyl isocyanurate adducts for improved heat resistance)IT **126564-70-3P**

(manuf. of, as heat-resistant prepreg laminates, from sol. prepolymer varnishes)

L26 ANSWER 9 OF 10 HCA COPYRIGHT 2002 ACS

111:99095 Phosphorous compound-containing imido-polyesters for electrically insulating coatings. Suzuki, Toshimichi; Mazaki, Shiro; Shibata, Hiroshi (Nitto Denko Corp., Japan). Jpn. Kokai Tokkyo Koho JP 63298912 A2 19881206 Showa, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-134314 19870528.

AB The coatings with good flexibility and adhesion to elec. wires contain imido-polyesters (A) contg. 0.05-3.0% equiv. (based on OH

groups of A) acidic P compds. A compn. prepd. from a soln. of p-cresol-blocked TDI trimers,  $\text{Ti}(\text{OBU})_4$ , and p-cresol-formaldehyde copolymer, and a soln. of terephthalic acid-ethylene glycol-tris(.alpha.-hydroxyethyl) isocyanurate-glycine-N,N'-bis(methylenephosphonic acid) (I)-trimellitic acid-methylenedianiline copolymer showed adhesion (on Cu wires, thickness 40-70 .mu.m, baking at 200-400.degree. for 6 min) 90 g/5 mm, vs. 76 g/5 mm without the I.

IT 122188-05-0

(elec. insulating coatings, with good adhesion to metals)

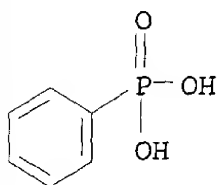
RN 122188-05-0 HCA

CN 1,4-Benzenedicarboxylic acid, dimethyl ester, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 1,2-ethanediol, 4,4'-oxybis[benzenamine], phenylphosphonic acid and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 1571-33-1

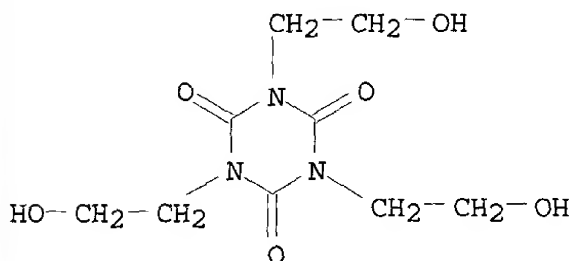
CMF C6 H7 O3 P



CM 2

CRN 839-90-7

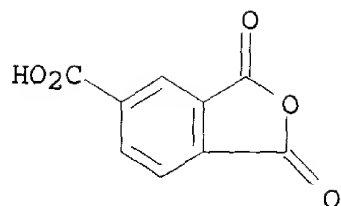
CMF C9 H15 N3 O6



CM 3

CRN 552-30-7

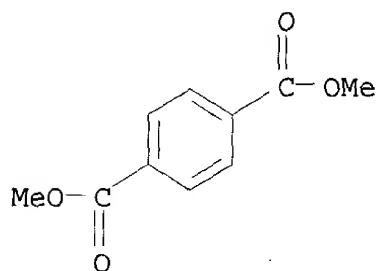
CMF C9 H4 O5



CM 4

CRN 120-61-6

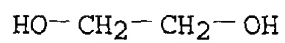
CMF C10 H10 O4



CM 5

CRN 107-21-1

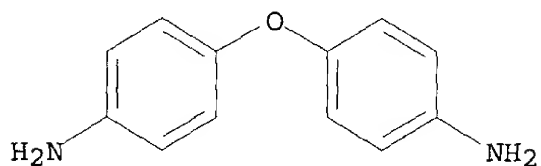
CMF C2 H6 O2



CM 6

CRN 101-80-4

CMF C12 H12 N2 O



IC ICM H01B003-42

ICS C09D003-49; H01B003-30

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 76

IT 122159-42-6 122159-43-7 122188-05-0 122353-51-9  
(elec. insulating coatings, with good adhesion to metals)

L26 ANSWER 10 OF 10 HCA COPYRIGHT 2002 ACS

108:205939 Light-sensitive resin compositions for **printed circuit board** resists. Yokoyama, Yasuaki; Fukuhara, Seiji; Ikeda, Hiroharu (Japan Synthetic Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 62277422 A2 19871202 Showa, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-120057 19860527.

AB The title compns. with good elec. and mech. property, heat resistance, and interlayer adhesion to substrates comprise epoxidized resins (prepd. by epoxidizing reaction products of halo- and/or alkyl-contg. phenols and aldehydes) 5-60, unsatd. carboxylic acid-modified epoxidized resins 20-75, .gtoreq.1 epoxy compd. (other than the epoxidized resins) 0.01-45.0, catalysts 0.01-10.0, and photopolymn. initiators 0.001-15%. Thus, a mixt. of epoxy resin (EOCN-102) 15, BREN 15, reaction products of EOCN 102S and mono(.beta.-acryloyloxyethyl) phthalate 35, poly(Me methacrylate) 5, triglycidyl isocyanurate 10, trimethylolpropane triacrylate 10, Aronix 10, benzoin dimethylketal 3, N-nitrosophenylhydroxylamine Al salts 0.03, Epi-cure 147 9, benzimidazole 0.25, and Diaresin Green C 0.25 part was coated on a substrate and dried 30 min at 80.degree. to give a 70-.mu. layer having good developed figures after exposed to 1 J/cm2 UV radiation and developed 3 min with chlorothene.

IT 114482-00-7 114482-03-0 114482-05-2  
114592-90-4  
(light-sensitive resists, for **printed circuit boards**)

RN 114482-00-7 HCA

CN 1,2-Benzenedicarboxylic acid, mono[2-[(1-oxo-2-propenyl)oxy]ethyl] ester, polymer with EOCN 102, EOCN 102S, 2-ethyl-2-[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane], methyl 2-methyl-2-propenoate, (2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-ethanediyl tri-2-propenoate and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 80111-79-1

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 71343-77-6

CMF Unspecified

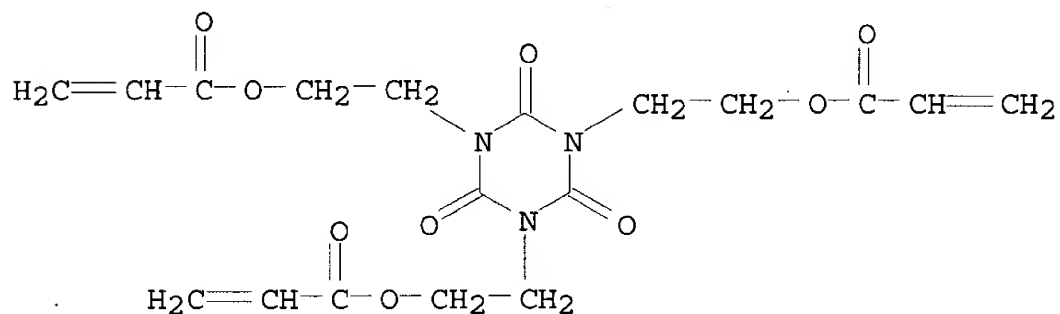
CCI PMS, MAN



CM 3

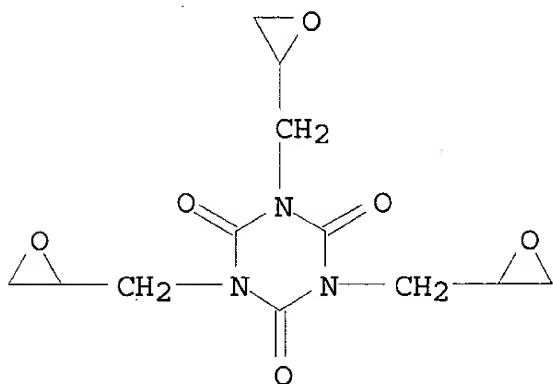
CRN 40220-08-4

CMF C18 H21 N3 O9

O=C(O)c1ccccc1C(=O)OCCOC(=O)C=C
$$\begin{array}{c} \text{H}_2\text{C}=\text{CH}-\overset{\text{O}}{\parallel}\text{C}-\text{O}-\text{CH}_2-\underset{\text{CH}_2-\text{O}-\overset{\text{O}}{\parallel}\text{C}-\text{CH}=\text{CH}_2}{\overset{\text{CH}_2-\text{O}-\overset{\text{O}}{\parallel}\text{C}-\text{CH}=\text{CH}_2}{\text{C}}}-\text{Et} \\ \text{O} \qquad \qquad \qquad \text{O} \end{array}$$

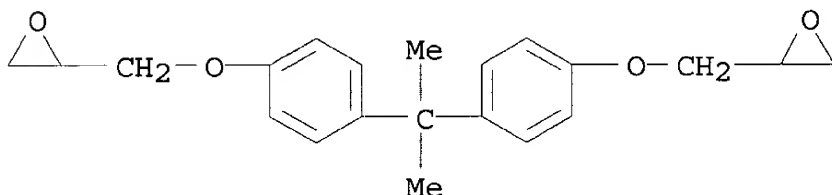
CM 6

CRN 2451-62-9  
CMF C12 H15 N3 O6



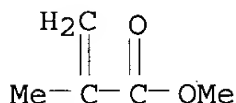
CM 7

CRN 1675-54-3  
CMF C21 H24 O4



CM 8

CRN 80-62-6  
CMF C5 H8 O2



RN 114482-03-0 HCA  
CN 2-Propenoic acid, 2-methyl-, polymer with EOCN 102,  
2-ethyl-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl  
di-2-propenoate, 2,2'-[(1-methylethylidene)bis(4,1-  
phenyleneoxymethylene)]bis[oxirane], methyl 2-methyl-2-propenoate,  
(2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-  
ethanediyl tri-2-propenoate and 1,3,5-tris(oxiranylmethyl)-1,3,5-  
triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 71343-77-6

CMF Unspecified

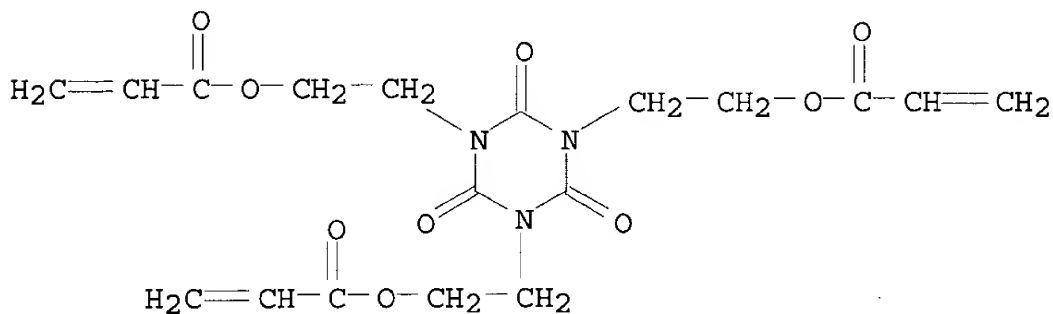
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 40220-08-4

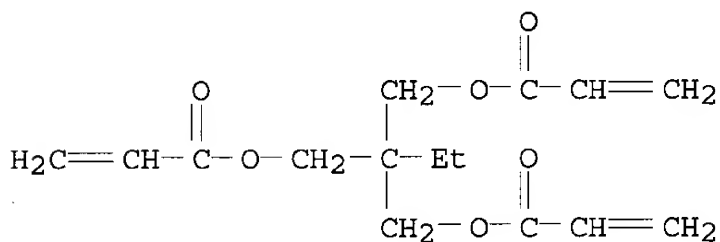
CMF C18 H21 N3 O9



CM 3

CRN 15625-89-5

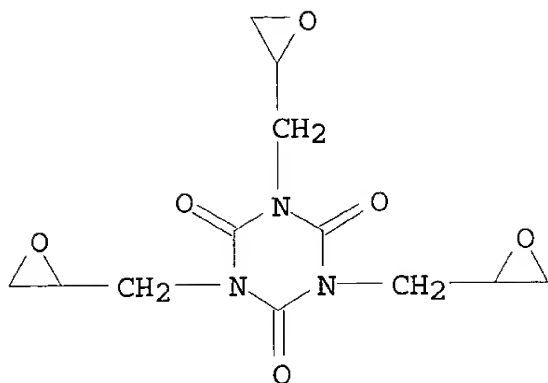
CMF C15 H20 O6



CM 4

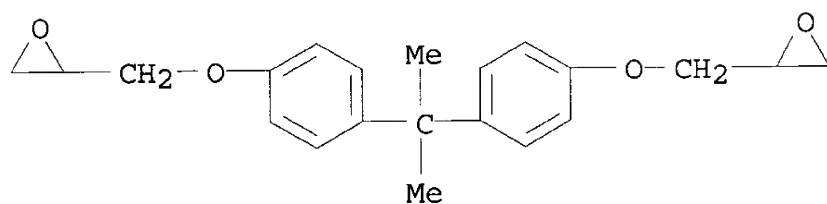
CRN 2451-62-9

CMF C12 H15 N3 O6



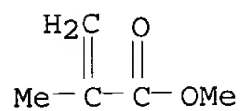
CM 5

CRN 1675-54-3  
CMF C21 H24 O4



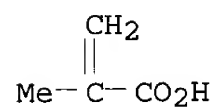
CM 6

CRN 80-62-6  
CMF C5 H8 O2



CM 7

CRN 79-41-4  
CMF C4 H6 O2



RN 114482-05-2 HCA

CN 2-Propenoic acid, 2-methyl-, polymer with BREN, EOCN 102,  
2-ethyl-2-[[ (1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl  
di-2-propenoate, 2,2'-[(1-methylethylidene)bis(4,1-  
phenyleneoxymethylene)]bis[oxirane], methyl 2-methyl-2-propenoate,  
(2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-  
ethanediyl tri-2-propenoate and 1,3,5-tris(oxiranylmethyl)-1,3,5-  
triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 71343-77-6

CMF Unspecified

CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 68859-34-7

CMF Unspecified

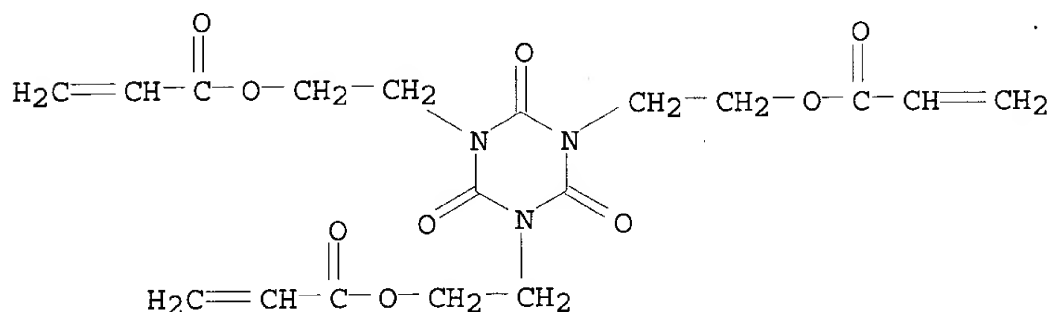
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 3

CRN 40220-08-4

CMF C18 H21 N3 O9

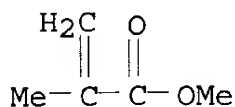


CM 4

CRN 15625-89-5

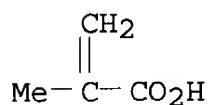
CMF C15 H20 O6





CM 8

CRN 79-41-4  
CMF C4 H6 O2



RN 114592-90-4 HCA  
CN 1,2-Benzenedicarboxylic acid, mono[2-[(1-oxo-2-propenyl)oxy]ethyl] ester, polymer with BREN, EOCN 102, EOCN 102S, Epicure 147, 2-ethyl-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate, 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane], methyl 2-methyl-2-propenoate, (2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-ethanediyl tri-2-propenoate and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 114512-72-0  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 2

CRN 80111-79-1  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 3

CRN 71343-77-6  
CMF Unspecified  
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 4

CRN 68859-34-7  
CMF Unspecified

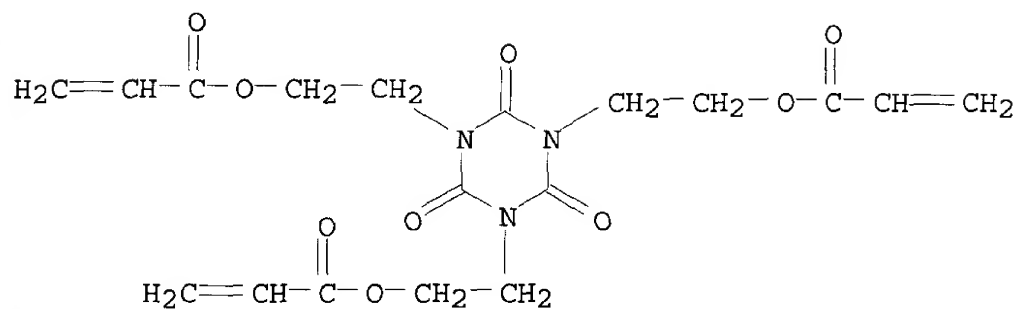
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 5

CRN 40220-08-4

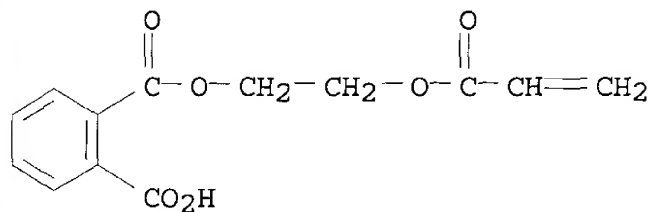
CMF C18 H21 N3 O9



CM 6

CRN 30697-40-6

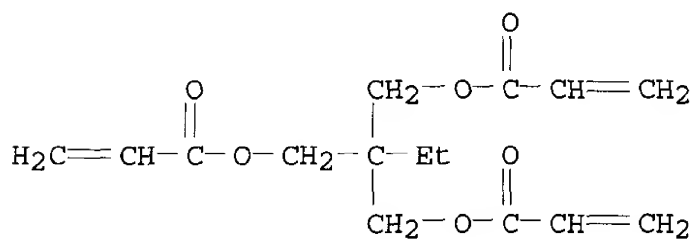
CMF C13 H12 O6



CM 7

CRN 15625-89-5

CMF C15 H20 O6

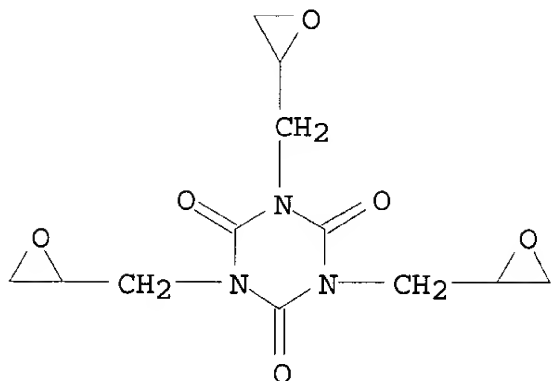




CM 8

CRN 2451-62-9

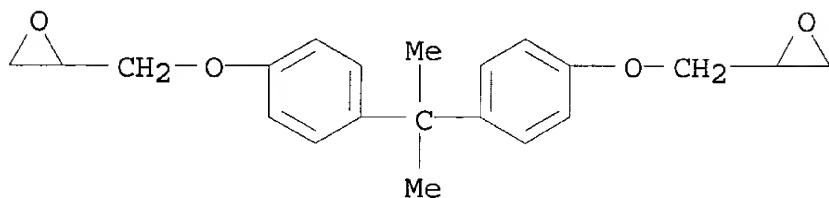
CMF C12 H15 N3 O6



CM 9

CRN 1675-54-3

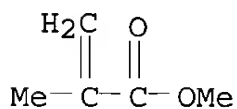
CMF C21 H24 O4



CM 10

CRN 80-62-6

CMF C5 H8 O2



IC ICM C08G059-18

ICS C08G059-14; C08G059-18; C08L063-00; G03C001-00; G03C001-68;  
G03C001-71; G03F007-10

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76

ST epoxidized phenoplast **circuit board** resist;  
light sensitive epoxidized phenoplast resist

IT Heat-resistant materials

(epoxidized phenolic resins contg. acrylic compds. as, for  
**print d circuit** resists)

IT Phenolic resins, uses and miscellaneous  
(epoxy, light-sensitive resists contg., for **printed  
circuit boards**)

IT Epoxy resins, uses and miscellaneous  
(phenolic, light-sensitive resists contg., for **printed  
circuit boards**)

IT **Electric circuits**  
(**printed**, resists for, light-sensitive epoxidized  
phenolic resin blends as)

IT 114481-98-0 114481-99-1 **114482-00-7** 114482-01-8  
114482-02-9 **114482-03-0** 114482-04-1 **114482-05-2**  
114592-89-1 **114592-90-4** 114592-91-5  
(light-sensitive resists, for **printed circuit  
boards**)

=> d 127 1-24 ti

L27 ANSWER 1 OF 24 HCA COPYRIGHT 2002 ACS  
TI Polyester-polyimide-based coating compositions for metals

L27 ANSWER 2 OF 24 HCA COPYRIGHT 2002 ACS  
TI Heat-resistant resins

L27 ANSWER 3 OF 24 HCA COPYRIGHT 2002 ACS  
TI Polyester imide coating materials

L27 ANSWER 4 OF 24 HCA COPYRIGHT 2002 ACS  
TI Water-soluble polyesteramide resin paints

L27 ANSWER 5 OF 24 HCA COPYRIGHT 2002 ACS  
TI Polyester elec insulators

L27 ANSWER 6 OF 24 HCA COPYRIGHT 2002 ACS  
TI Electroinsulation varnish based on poly(esterisocyanuric ester  
imide)

L27 ANSWER 7 OF 24 HCA COPYRIGHT 2002 ACS  
TI Electrically insulating coating materials

L27 ANSWER 8 OF 24 HCA COPYRIGHT 2002 ACS  
TI Coating compositions

L27 ANSWER 9 OF 24 HCA COPYRIGHT 2002 ACS  
TI Resin compositions for melt-coating

L27 ANSWER 10 OF 24 HCA COPYRIGHT 2002 ACS  
TI Melt-coating resin compositions

L27 ANSWER 11 OF 24 HCA COPYRIGHT 2002 ACS

TI Water-soluble poly(ester imide) resins

L27 ANSWER 12 OF 24 HCA COPYRIGHT 2002 ACS  
TI Poly(amide ester imide) electric insulators

L27 ANSWER 13 OF 24 HCA COPYRIGHT 2002 ACS  
TI Water-thinned poly(ester amide imide) insulating varnishes

L27 ANSWER 14 OF 24 HCA COPYRIGHT 2002 ACS  
TI Heat-resistant thermosetting resin composition

L27 ANSWER 15 OF 24 HCA COPYRIGHT 2002 ACS  
TI Resin compositions for lacquer enamels

L27 ANSWER 16 OF 24 HCA COPYRIGHT 2002 ACS  
TI Polyamide-ester-quinazoline-2,4-dione resins

L27 ANSWER 17 OF 24 HCA COPYRIGHT 2002 ACS  
TI Electric insulation coatings

L27 ANSWER 18 OF 24 HCA COPYRIGHT 2002 ACS  
TI Polymers containing structural units derived from  
2,4-dioxohexahydropyrimidine or its open chain form

L27 ANSWER 19 OF 24 HCA COPYRIGHT 2002 ACS  
TI Aromatic polyamide coating materials from phthalate esters and  
polyisocyanates

L27 ANSWER 20 OF 24 HCA COPYRIGHT 2002 ACS  
TI Heat-resistant polyesters

L27 ANSWER 21 OF 24 HCA COPYRIGHT 2002 ACS  
TI Poly(ester imides)

L27 ANSWER 22 OF 24 HCA COPYRIGHT 2002 ACS  
TI Polyester-polyimide wire enamel

L27 ANSWER 23 OF 24 HCA COPYRIGHT 2002 ACS  
TI Polyester-polyimide coatings for electric conductors

L27 ANSWER 24 OF 24 HCA COPYRIGHT 2002 ACS  
TI Polyester-polyimide wire enamel

=> d 127 5,6,12,13,17,22,23,24 cbib abs hitstr hitind

L27 ANSWER 5 OF 24 HCA COPYRIGHT 2002 ACS  
99:177577 Polyester elec insulators. (Showa Electric Wire and Cable Co.,  
Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 58037067 A2 19830304 Showa,  
5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1981-136016  
19810829.

AB The title compn. for magnet wire, having a high softening point and

giving an abrasion- and impact-resistant product with good windability, contains a polyester having 2,4-bis(hydroxyethyl)-5,5-dimethylhydantoin (I) as a difunctional alc. component in a glycol ether solvent at concn. .gtoreq.70%. Thus, a mixt. of di-Me terephthalate 388, ethylene glycol 49.6, I 172.8, glycerol 92, Pb naphthenate 8, and naphtha 80 g was heated at 230.degree. for 5 h, then treated with 950 g cresol and 5 g (BuO)<sub>4</sub>Ti to give a 40% resin [87622-03-5] soln. having viscosity 40 P at 30.degree.. A wire was coated with a resin at 12 m/min 6 times to give a product having softening point 335.degree., dielec. strength 10.3 kV, dielec. strength retention after 160 h at 220.degree. 92% with good surface appearance, windability (after 6 h at 220.degree.), impact resistance (after 1 h at 220.degree.), and chem. resistance.

IT 87622-02-4

(elec. insulators, for magnet wires, abrasion- and impact-resistant)

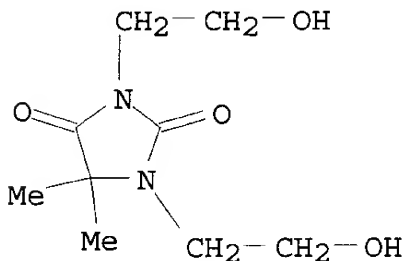
RN 87622-02-4 HCA

CN 1,4-Benzenedicarboxylic acid, polymer with 1,3-bis(2-hydroxyethyl)-5,5-dimethyl-2,4-imidazolidinedione, 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 1,2-ethanediol, 4,4'-oxybis[benzenamine], 1,2,3-propanetriol and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 26850-24-8

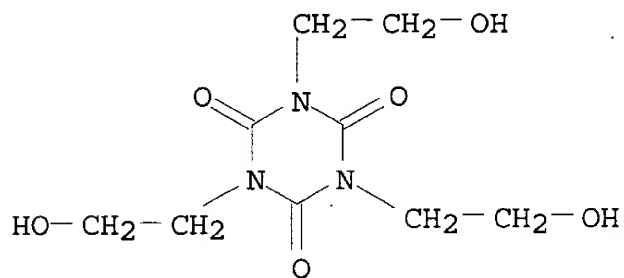
CMF C9 H16 N2 O4



CM 2

CRN 839-90-7

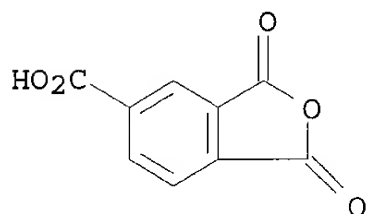
CMF C9 H15 N3 O6



CM 3

CRN 552-30-7

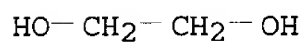
CMF C9 H4 O5



CM 4

CRN 107-21-1

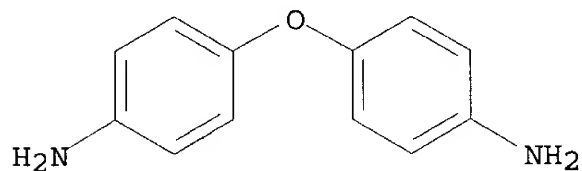
CMF C2 H6 O2



CM 5

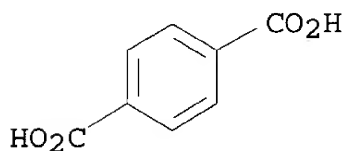
CRN 101-80-4

CMF C12 H12 N2 O



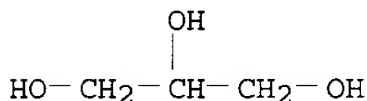
CM 6

CRN 100-21-0  
CMF C8 H6 O4



CM 7

CRN 56-81-5  
CMF C3 H8 O3



IC C09D005-25; C09D003-64  
CC 42-8 (Coatings, Inks, and Related Products)  
IT 87621-99-6 87622-00-2 87622-01-3 **87622-02-4**  
87622-03-5  
(elec. insulators, for magnet wires, abrasion- and  
impact-resistant)

L27 ANSWER 6 OF 24 HCA COPYRIGHT 2002 ACS

95:8881 Electroinsulation varnish based on poly(esterisocyanuric ester imide). Kriz, Jaroslav; Streska, Miroslav (Czech.). Czech. CS 184094 19800715, 3 pp. (Czech). CODEN: CZXXA9. APPLICATION: CS 1975-6088 19750908.

AB Heat-resistant varnishes suitable for impregnation of windings are prep'd. from a poly(ester isocyanurate imide) resin (1.2-2.5 mequiv OH/g) 24-34, tris[5-(phenoxycarbonylamino)-2-methylphenyl] isocyanurate (I) 11-16, noncorrosive medium-polar org. solvents 50-65, a Zn salt of an org. acid .ltoreq.0.1, and bisphenol A (II) oligoglycidyl ether .ltoreq.5%. The resin is a condensation product of 2,2-dimethyl-1,3-dihydroxypropane (III), tris(2-hydroxyethyl) isocyanurate (IV), dicarboxylic acids, and an arom. imidodicarboxylic acid or its mixt. with 6-trimellitimidocaproic acid. Thus, III 141.7, IV 152.6, sebacic acid 131.4, isophthalic acid 108.0, bis(3-methyl-4-aminophenyl)methane 58.9, and trimellitic anhydride 99.8 g were condensed to give a resin; the resin 608, xylene 410, EtOCH<sub>2</sub>CH<sub>2</sub>OAc (V) 410, a 50% soln. of I in V 626, a 50% xylene soln. of II diglycidyl ether 155, and an 8% xylene soln. of Zn naphthenate 0.67 g gave a varnish thinable with xylene or V which gelled within 2.5 h and completely hardened within 24 h at 135.degree.. The product [77728-74-6] had short-term resistance at 280-300.degree., wt. loss 20.4% after 150 h at 250.degree. and 25.2% after 8 wk at 200.degree., dielec. strength

97.3 kV/mm, and adhesion to Al 9.9 and 8.24 MPa at 20 and 180.degree., resp.

IT

77728-74-6

(elec. insulator varnishes, for windings)

RN

77728-74-6 HCA

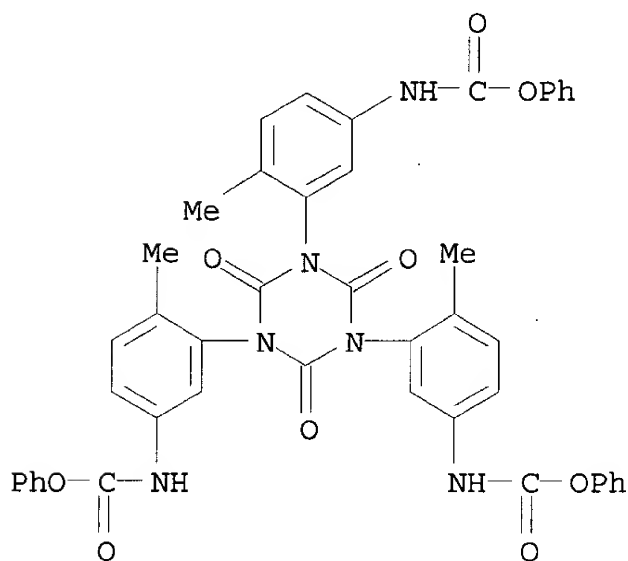
CN

1,3-Benzenedicarboxylic acid, polymer with decanedioic acid, 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 2,2-dimethyl-1,3-propanediol, 4,4'-methylenebis[2-methylbenzenamine], 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane], triphenyl [(2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tris(4-methyl-3,1-phenylene)]tris[carbamate] and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 74891-46-6

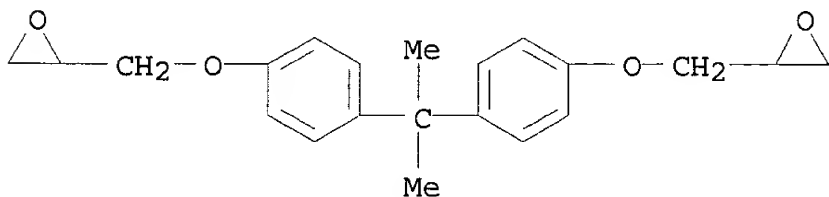
CMF C45 H36 N6 O9



CM 2

CRN 1675-54-3

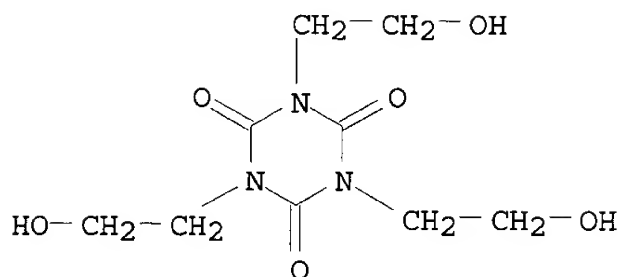
CMF C21 H24 O4



CM 3

CRN 839-90-7

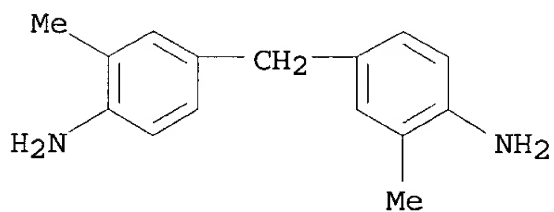
CMF C9 H15 N3 O6



CM 4

CRN 838-88-0

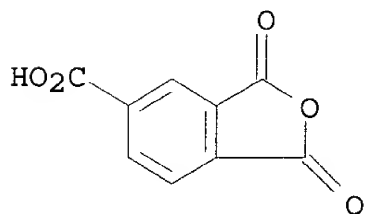
CMF C15 H18 N2



CM 5

CRN 552-30-7

CMF C9 H4 O5

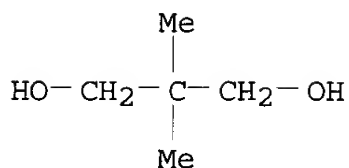


CM 6

CRN 126-30-7

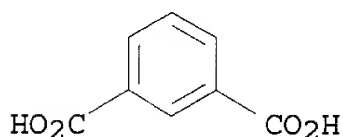
CMF C5 H12 O2





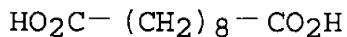
CM 7

CRN 121-91-5  
CMF C8 H6 O4



CM 8

CRN 111-20-6  
CMF C10 H18 O4



IC C09D005-25  
CC 42-3 (Coatings, Inks, and Related Products)  
IT 77728-72-4 77728-73-5 **77728-74-6**  
(elec. insulator varnishes, for windings)

L27 ANSWER 12 OF 24 HCA COPYRIGHT 2002 ACS  
87:185714 Poly(amide ester imide) electric insulators. Suzuki, Yasuhiro; Ohmori, Saburo; Katashiba, Yasumasa; Watanabe, Akira (Nitto Electric Industrial Co., Ltd., Japan). Japan. JP 52012756 B4 19770109 Showa, 6 pp. (Japanese). CODEN: JAXXAD. APPLICATION: JP 1972-18785 19720223.

AB Poly(amide ester imides) were baked on Cu wires to give insulation with better chem. resistance than poly(ester imides). Thus, dimethyl terephthalate 88.5, diaminodiphenylmethane 23.0, and m-cresol 44 g were stirred at 210-15.degree. for 6 h, treated with 38.5 g glycerol and 26 g ethylene glycol, heated to 180.degree., treated with diaminodiphenylmethane 54, trimellitic anhydride 104.0, and Zn(OAc)2 0.03 g, heated to 230.degree. with H2O and MeOH removal, mixed with 300 g cresol and 160 g naphtha, treated with 4.3 g Ti(Obu)4 in 30 g cresol, heated 2 h at 70.degree., and baked on Cu wire.

IT **64941-76-0 64941-77-1**  
(elec. insulators, chem.-resistant)

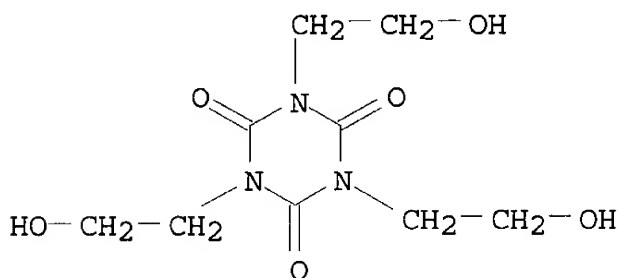
RN 64941-76-0 HCA

CN 1,3-Benzenedicarboxylic acid, polymer with [1,1'-biphenyl]-4,4'-diamine, 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, dimethyl 1,4-benzenedicarboxylate, 1,2-ethanediol, 4,4'-oxybis[benzenamine] and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 839-90-7

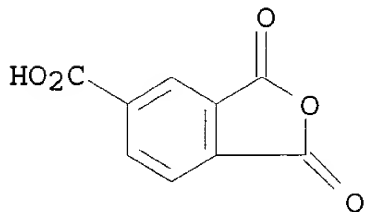
CMF C9 H15 N3 O6



CM 2

CRN 552-30-7

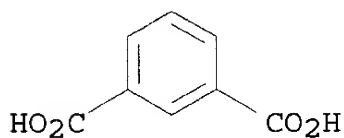
CMF C9 H4 O5



CM 3

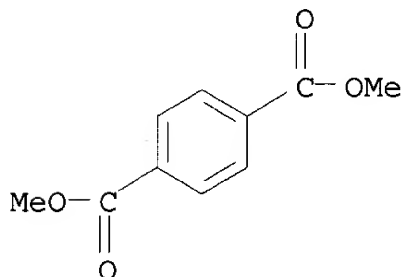
CRN 121-91-5

CMF C8 H6 O4



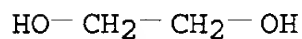
CM 4

CRN 120-61-6  
CMF C10 H10 O4



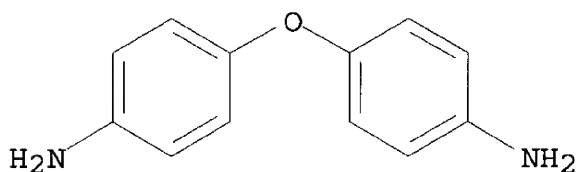
CM 5

CRN 107-21-1  
CMF C2 H6 O2



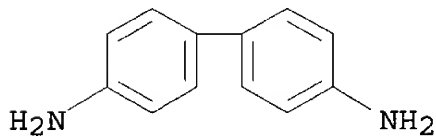
CM 6

CRN 101-80-4  
CMF C12 H12 N2 O



CM 7

CRN 92-87-5  
CMF C12 H12 N2



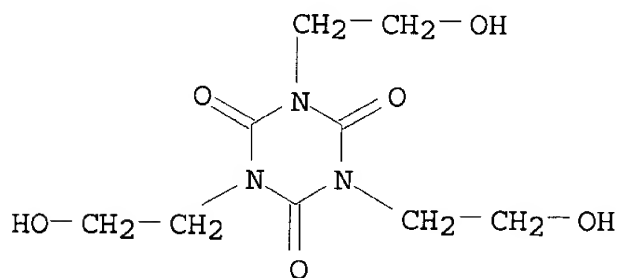
RN 64941-77-1 HCA  
CN 1,4-Benzenedicarboxylic acid, dimethyl ester, polymer with  
1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid,

1,2-ethanediol, 4,4'-methylenebis[benzenamine], 4,4'-oxybis[benzenamine] and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 839-90-7

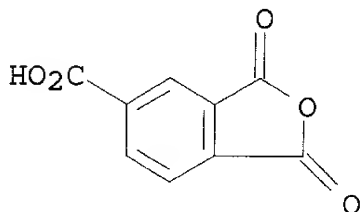
CMF C9 H15 N3 O6



CM 2

CRN 552-30-7

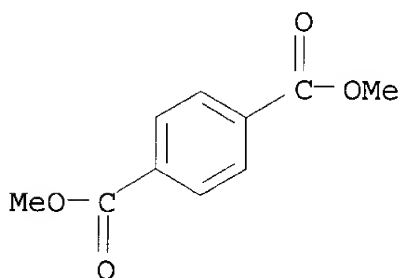
CMF C9 H4 O5



CM 3

CRN 120-61-6

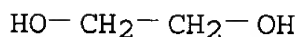
CMF C10 H10 O4



CM 4

CRN 107-21-1

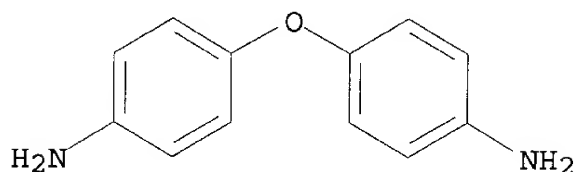
CMF C2 H6 O2



CM 5

CRN 101-80-4

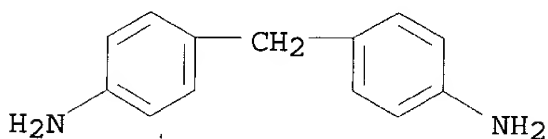
CMF C12 H12 N2 O



CM 6

CRN 101-77-9

CMF C13 H14 N2



IC C08G073-16

CC 37-3 (Plastics Fabrication and Uses)

IT 31216-20-3 64941-75-9 **64941-76-0** **64941-77-1**

64941-78-2

(elec. insulators, chem.-resistant)

L27 ANSWER 13 OF 24 HCA COPYRIGHT 2002 ACS

87:40416 Water-thinned poly(ester amide imide) insulating varnishes.

Jidai, Eiki; Ono, Hiroshi; Shibayama, Kyoichi (Mitsubishi Electric Corp., Japan). Japan. Kokai JP 52047099 19770414 Showa, 7 pp.

(Japanese). CODEN: JKXXAF. APPLICATION: JP 1975-122287 19751009.

AB Water-thinned insulators were prepd. from modified poly(amide ester imides). Thus, an acid-terminated amide imide, obtained by heating at 150.degree. a mixt. of diaminodiphenylmethane 198, trimellitic anhydride 240, and m-cresol 900 parts, was heated with ethylene glycol 30, tetra-Bu titanate 0.4, poly(ethylene terephthalate) 100, and tris(2-hydroxyethyl) isocyanurate 40 parts to give a OH-terminated polymer, which (200 parts) was heated 30 min at

180.degree. with 50 parts trimellitic anhydride; the resulting polymer [24938-17-8] (100 parts) was stirred at 90.degree. with 200 parts of an aq. soln. contg. 20 parts triethanolamine to give a transparent viscous soln., which was coated on a Cu wire and heated 1 h at 250.degree. to give a 40-.mu.-thick heat- and abrasion-resistant insulating coating.

IT 63266-38-6

(elec. insulators)

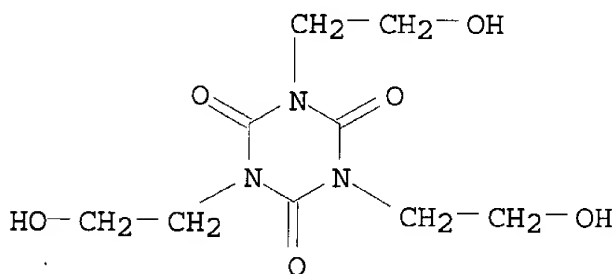
RN 63266-38-6 HCA

CN 1,4-Benzenedicarboxylic acid, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 1,2-ethanediol, 2-ethyl-2-(hydroxymethyl)-1,3-propanediol, 4,4'-oxybis[benzenamine] and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 839-90-7

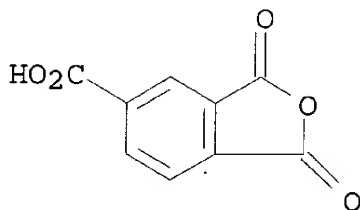
CMF C9 H15 N3 O6



CM 2

CRN 552-30-7

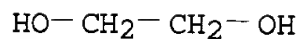
CMF C9 H4 O5



CM 3

CRN 107-21-1

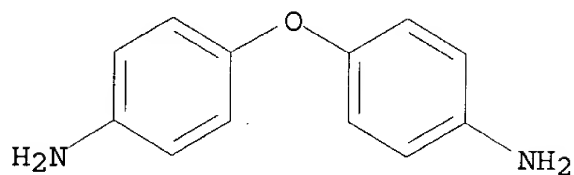
CMF C2 H6 O2



CM 4

CRN 101-80-4

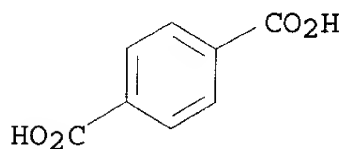
CMF C12 H12 N2 O



CM 5

CRN 100-21-0

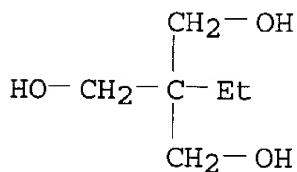
CMF C8 H6 O4



CM 6

CRN 77-99-6

CMF C6 H14 O3



IC C08G073-16

CC 37-3 (Plastics Fabrication and Uses)

IT 24938-17-8 63266-36-4 63266-37-5 **63266-38-6**  
 63266-39-7 63266-40-0  
 (elec. insulators)

L27 ANSWER 17 OF 24 HCA COPYRIGHT 2002 ACS

80:110002 Electric insulation coatings. Ohkubo, Noriyoshi; Fukushima, Hiroyuki; Shirahata, Isao (Furukawa Electric Co., Ltd.). Jpn. Tokkyo Koho JP 48017837 B4 19730601 Showa, 5 pp. (Japanese).

CODEN: JAXXAD. APPLICATION: JP 1969-34144 19690502.

AB The title coating compns. were prepd. in a short reaction time from (A) trimellitic anhydride (I) and optionally pyromellitic acid, (B) di-Me terephthalate (II) and optionally isophthalic acid, (C)  $(H_2NC_6H_4)_2X$  ( $X = CH_2, O, NH$ ), (D) ethylene carbonate (III) and optionally proplene carbonate, and (E) ethylene glycol (IV) and glycerol or tris(2-hydroxyethyl) isocyanurate (V); reactants A, C, D and optionally a portion of B were reacted initially followed by reaction with E and B or remaining B, and the reaction mixt. was thinned with solvent just before the mixt. thickened to lose fluidity. For example, a mixt. of I 192, diaminodiphenyl ether 100, III 44, Sb<sub>2</sub>O<sub>3</sub> 1, PbO 0.5, N-methylpyrrolidone 200, and methylnaphthalene 200 g was heated to 200.deg. over 2 hr, at 200 for 6 hr, to 205.deg. over 0.5 hr, and at 205 for 1.5 hr, concd. in vacuo with 250 g solvent distn., treated with II 194, V 209, and IV 18 g at 170.deg., heated to 220.deg. over 8 hr, and thinned with cresol to give 30% trimellitic anhydride-diaminodiphenyl ether-ethylene carbonate-dimethyl terephthalate-tris(2-hydroxyethyl) isocyanurate-ethylene glycol copolymer [51366-50-8]. Elec. insulation coating on Cu wire, from the copolymer soln. had properties comparable to those of A-C-D polymer-B-E polymer blend or the polymer prepd. by 1 step polymn. both requiring longer polymn. time.

IT 51995-13-2

(coating materials, elec.-insulating)

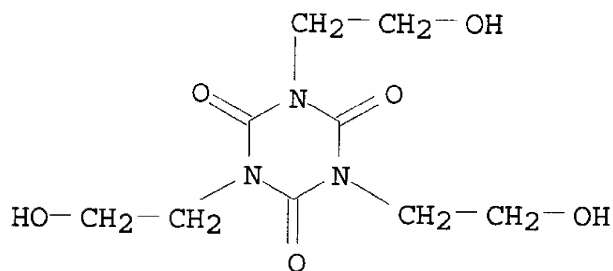
RN 51995-13-2 HCA

CN 1,4-Benzenedicarboxylic acid, dimethyl ester, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 1,3-dioxolan-2-one, 1,2-ethanediol, 4,4'-oxybis[benzenamine] and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 839-90-7

CMF C9 H15 N3 O6

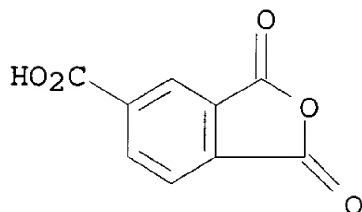


CM 2

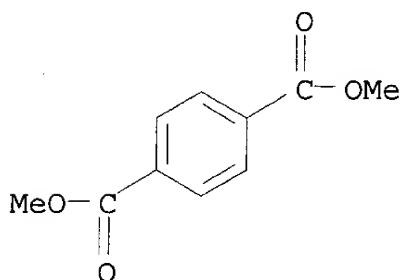
CRN 552-30-7



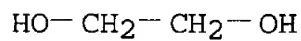
CMF C9 H4 O5



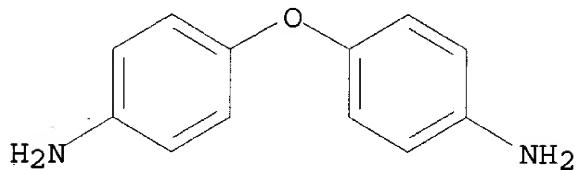
CM 3

CRN 120-61-6  
CMF C10 H10 O4

CM 4

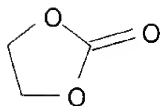
CRN 107-21-1  
CMF C2 H6 O2

CM 5

CRN 101-80-4  
CMF C12 H12 N2 O

CM 6

CRN 96-49-1  
CMF C3 H4 O3



IC H01B; C08G  
CC 42-10 (Coatings, Inks, and Related Products)  
IT 51995-13-2  
(coating materials, elec.-insulating)

L27 ANSWER 22 OF 24 HCA COPYRIGHT 2002 ACS

76:26515 Polyester-polyimide wire enamel. Meyer, John Fray; Sheffer, Howard E.; Zalewski, Edmund J. (Schenectady Chemicals, Inc.). Brit. Amended GB 1082181 19700910, 7 pp. (English). CODEN: BSXXAH. PRIORITY: US 19650520.

AB A polyester-polyimide wire enamel coating for application as elec. insulators was composed of a polyester of di-Me terephthalate-ethylene glycol-tris(2-hydroxyethyl) isocyanurate copolymer [31045-37-1] and 5-50% polyimide of 4,4'-oxydianiline-trimellitic anhydride copolymer [27084-44-2] or 4,4'-methylenedianiline-trimellitic anhydride copolymer [25119-99-7]. For example, 192 g trimellitic anhydride in 300 cm<sup>3</sup> N-methylpyrrolidone and 100 g 4,4'-oxydianiline in 300 cm<sup>3</sup> of the same solvent were mixed in an exothermic reaction. Tris(2-hydroxyethyl) isocyanurate 9, ethylene glycol 165, di-Me terephthalate 388, and litharge 0.0345 g were added and the mixt. was heated to 440.deg.F and an orange solid became suspended in the mixt. Heating was continued 48-72 hr to give a clear mixt. suitable as a wire enamel coating, e.g. for copper wire, which could be thinned to a smaller total solids content.

IT 30939-59-4

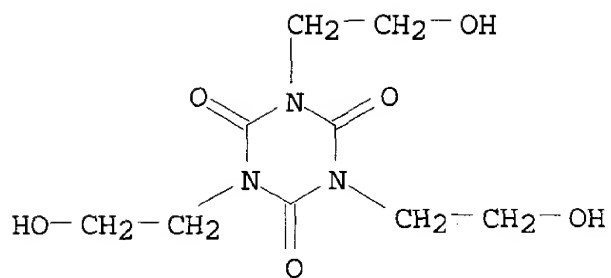
(elec. insulators, for copper wire)

RN 30939-59-4 HCA

CN 1,4-Benzenedicarboxylic acid, dimethyl ester, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 1,2-ethanediol, 4,4'-oxybis[benzenamine] and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

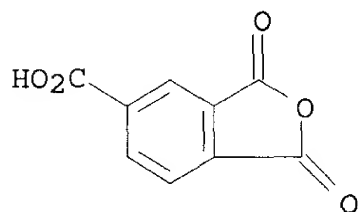
CRN 839-90-7  
CMF C9 H15 N3 O6



CM 2

CRN 552-30-7

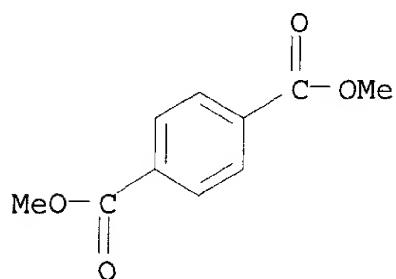
CMF C9 H4 O5



CM 3

CRN 120-61-6

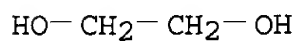
CMF C10 H10 O4



CM 4

CRN 107-21-1

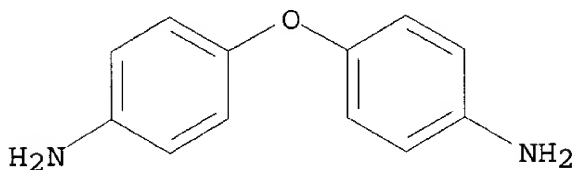
CMF C2 H6 O2



CM 5

CRN 101-80-4

CMF C12 H12 N2 O



IC C08G

CC 42 (Coatings, Inks, and Related Products)

IT 25950-45-2 **30939-59-4**

(elec. insulators, for copper wire)

L27 ANSWER 23 OF 24 HCA COPYRIGHT 2002 ACS

71:51323 Polyester-polyimide coatings for electric conductors. Meyer, John F.; Sheffer Howard E.; Zalewski, Edmund J. (Schenectady Chemicals, Inc.). Fr. Addn. FR 91878 19680823, 5 pp. Addn. to Fr. 1478938 (French). CODEN: FAXXA3. PRIORITY: US 19660221.

AB The resistance to thermal aging of polyester-polyimide coatings for elec. conductors is increased by applying a 2nd coating of a poly(ethylene terephthalate) varnish. Thus, a mixt. of cresylic acid (I) 2080, HOCH<sub>2</sub>CH<sub>2</sub>OH 643, tris(2-hydroxyethyl) isocyanurate 2573, trimellitic anhydride 1661, methylenedianiline (II) 854, terephthalic acid 1882, and p-toluenesulfonic acid 3.3 kg. was heated 15 hrs. at 226.degree. until the viscosity in I contg. 40% solids was Z4 on the Gardner-Holdt Scale at 25.degree.. The mixt. was dild. with 5224 kg. I and 3904 kg. Solvesso 100 (III). To 10,227 kg. of this soln. was added 2805 kg. I and 1491 kg. III, the mixt. was heated at 48-55.degree., 182 kg. (iso-PrO)<sub>4</sub>Ti was added in 15 min., 1125 kg. Mondur SH was added as a 40% soln. in I, and 482 kg. of a cresol-formaldehyde resin was added as a 40% soln. in I. The mixt. was heated 3.25 hrs. at 118-21.degree., cooled, dild. with 715 kg. I and 385 kg. III, and several coats of the soln. were applied to a copper wire. The conductors were then coated with a single layer using a soln. contg. Dacron [poly(ethylene terephthalate)] fibers 1461, p-chlorophenol 3300, and a 70:30 mixt. of PhOH and cresol 5217 parts. The conductors had the following properties (coatings applied, life span in hrs. at 260.degree., and life span in hrs. at 280.degree. given): polyester-polyimide coating, 564, 131; polyester-polyimide coating and Dacron varnish, 1000, 168. Other anhydrides claimed were pyromellitic anhydride and benzophenonetetra-carboxylic anhydride. Oxydianiline was also used in place of II.

IT **24938-18-9**

(elec. insulators from)

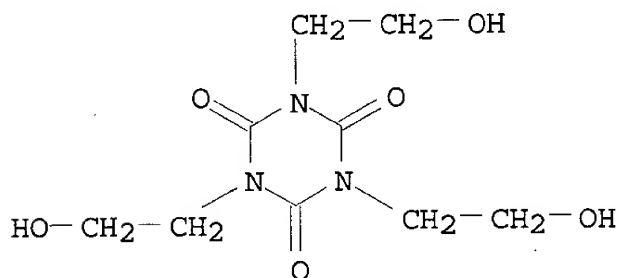
RN 24938-18-9 HCA

CN 1,2,4-Benzenetricarboxylic acid, cyclic 1,2-anhydride, polymer with 4,4'-oxydianiline, terephthalic acid and 1,3,5-tris(2-hydroxyethyl)-s-triazine-2,4,6(1H,3H,5H)-trione (8CI) (CA INDEX NAME)

CM 1

CRN 839-90-7

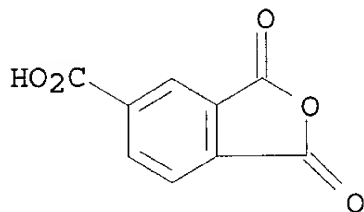
CMF C9 H15 N3 O6



CM 2

CRN 552-30-7

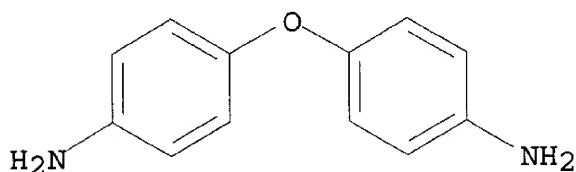
CMF C9 H4 O5



CM 3

CRN 101-80-4

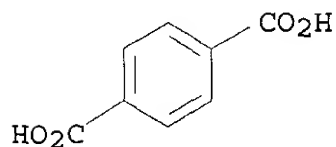
CMF C12 H12 N2 O



CM 4

CRN 100-21-0

CMF C8 H6 O4



IC C08G; H01B  
 CC 42 (Coatings, Inks, and Related Products)  
 IT 24938-17-8 **24938-18-9**  
 (elec. insulators from)

L27 ANSWER 24 OF 24 HCA COPYRIGHT 2002 ACS

67:101112 Polyester-polyimide wire enamel. Meyer, John Fray; Sheffer, Howard E.; Zalewski, Edmund J. (Schenectady Chemicals, Inc.). Brit. GB 1082181 19670906, 8 pp. (English). CODEN: BRXXAA. APPLICATION: GB 1966-324 19660104.

AB Polyester-polyimide wire enamels for elec. conductors contain 5 50 equiv. % polyimide and a polyester comprising .gtoreq.20 wt. % tris(2-hydroxyethyl) isocyanurate in the alc. component and .gtoreq.50 wt. % terephthalic acid, isophthalic acid, or benzophenone-4,4'-dicarboxylic acid in the acid component. The enamel also contained 1-25% polyisocyanate, 0.01-10% alkyl titanate, 0.2-1.0% metal drier, 1-5% melamine-HCHO resin or phenolic resin, solvents, and diluents. Thus, 100 g. 4,4'-oxydianiline and 150 g. N-methylpyrrolidinone was added to 192 g. trimellitic anhydride and 150 g. N-methylpyrrolidinone at 200.degree.F., di-Me terephthalate 254, ethylene glycol 103, tris(2-hydroxyethyl)-isocyanurate 120, xylene 50, and litharge 0.15 g. added, the temp. increased during 24 hrs. to 440.degree.F. while MeOH and xylene distd. off, 1800 g. cresylic acid added when the viscosity was M at 30% solids to give a viscosity of U 3/4 at 24% solids, and the resin soln. 840, tetraisopropyl titanate 8, 40% Mondur SH in cresylic acid 56, and phenol-HCHO resin at 40% solids in cresylic acid 25 g. mixed, heated to 250.degree., cooled, and run on Cu wire in a wire tower at 750.degree.F. to give an enamel wire having good elec. properties, e.g. mandrel after-snap, flex aging at 175.degree.F., heat shock 15% stretch at 200.degree. and 250.degree., cut-through temp., heat-life test at 260.degree., and Emerson scrape test. Similarly, 4,4'-methylenedianiline could be used in place of 4,4'-oxydianiline and di-Me 4,4'-benzophenonedicarboxylate instead of di-Me terephthalate.

IT **30939-59-4**  
 (elec. insulators from phenol condensation products, urethane polymers and, for copper wire)

RN 30939-59-4 HCA

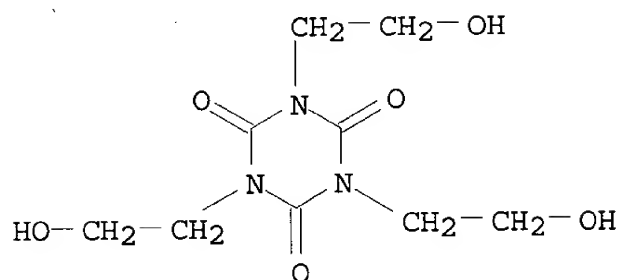
CN 1,4-Benzenedicarboxylic acid, dimethyl ester, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 1,2-ethanediol, 4,4'-oxybis[benzenamine] and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX

NAME)

CM 1

CRN 839-90-7

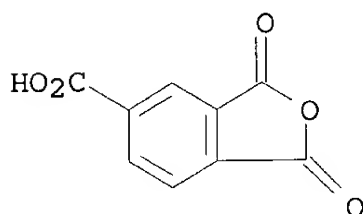
CMF C9 H15 N3 O6



CM 2

CRN 552-30-7

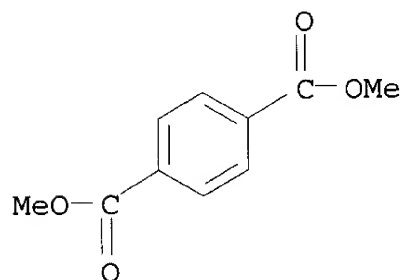
CMF C9 H4 O5



CM 3

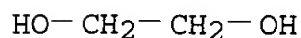
CRN 120-61-6

CMF C10 H10 O4



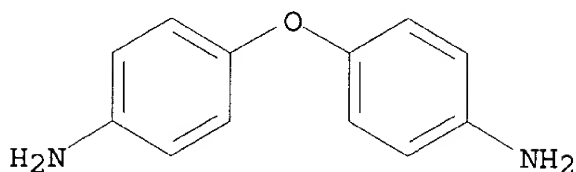
CM 4

CRN 107-21-1  
CMF C2 H6 O2



CM 5

CRN 101-80-4  
CMF C12 H12 N2 O



IC C08G  
CC 42 (Coatings, Inks, and Related Products)  
IT 25950-45-2 **30939-59-4** 31000-49-4  
(elec. insulators from phenol condensation products, urethane polymers and, for copper wire)

=> d 128 1-23 ti

- L28 ANSWER 1 OF 23 HCA COPYRIGHT 2002 ACS  
TI Active energy-curable compositions for optical disks and the disks therefrom
- L28 ANSWER 2 OF 23 HCA COPYRIGHT 2002 ACS  
TI Flowable powder coating compositions containing advanced epoxy resins
- L28 ANSWER 3 OF 23 HCA COPYRIGHT 2002 ACS  
TI Resin composition for compactly sealing liquid crystal display and devices therewith
- L28 ANSWER 4 OF 23 HCA COPYRIGHT 2002 ACS  
TI (Meth)acrylate compositions for plastic lenses with excellent heat, impact, and water resistance and high flexibility
- L28 ANSWER 5 OF 23 HCA COPYRIGHT 2002 ACS  
TI Polyoxyalkylene-polyamides with good processability and resistance to heat
- L28 ANSWER 6 OF 23 HCA COPYRIGHT 2002 ACS  
TI Powder paints for cast iron tubes



- L28 ANSWER 7 OF 23 HCA COPYRIGHT 2002 ACS  
TI Composites of aromatic polyamides and water-soluble polymers with good heat resistance and mechanical strength
- L28 ANSWER 8 OF 23 HCA COPYRIGHT 2002 ACS  
TI Flame retardant thermoset resin compositions
- L28 ANSWER 9 OF 23 HCA COPYRIGHT 2002 ACS  
TI Liquid epoxy resin compositions with good adhesion, water and heat resistance, and low viscosity
- L28 ANSWER 10 OF 23 HCA COPYRIGHT 2002 ACS  
TI Epoxy resins based on triglycidyl isocyanurate
- L28 ANSWER 11 OF 23 HCA COPYRIGHT 2002 ACS  
TI Simple method for manufacture of polyester resins having shape memory properties
- L28 ANSWER 12 OF 23 HCA COPYRIGHT 2002 ACS  
TI Epoxy resin hardeners and curable epoxy resin compositions
- L28 ANSWER 13 OF 23 HCA COPYRIGHT 2002 ACS  
TI Powders based on meltable thermosetting resins and elastomers or thermoplastic polymers, and their manufacture and use for coatings with a structured effect
- L28 ANSWER 14 OF 23 HCA COPYRIGHT 2002 ACS  
TI Carboxy-terminated polyol esters as curing agents for epoxy resins
- L28 ANSWER 15 OF 23 HCA COPYRIGHT 2002 ACS  
TI Transparent epoxy resin molding compositions
- L28 ANSWER 16 OF 23 HCA COPYRIGHT 2002 ACS  
TI Preparation of transparent epoxy resin molding compositions
- L28 ANSWER 17 OF 23 HCA COPYRIGHT 2002 ACS  
TI Electrophotographic dry toner
- L28 ANSWER 18 OF 23 HCA COPYRIGHT 2002 ACS  
TI Adsorbents for extracorporeal removal of albumin complexes in liver insufficiency or drug poisoning
- L28 ANSWER 19 OF 23 HCA COPYRIGHT 2002 ACS  
TI Semipermeable composite membranes
- L28 ANSWER 20 OF 23 HCA COPYRIGHT 2002 ACS  
TI Absorbents for bilirubin
- L28 ANSWER 21 OF 23 HCA COPYRIGHT 2002 ACS  
TI Albumin-fixed resin and method of using it to remove noxious substances from solutions containing them such as blood

L28 ANSWER 22 OF 23 HCA COPYRIGHT 2002 ACS

TI Triglycidyl isocyanurate preparation

L28 ANSWER 23 OF 23 HCA COPYRIGHT 2002 ACS

TI Epoxy resin coatings for melamine polymer moldings

=> d 128 3 cbib abs hitstr hitind

L28 ANSWER 3 OF 23 HCA COPYRIGHT 2002 ACS

132:195503 Resin composition for compactly sealing liquid crystal display and devices therewith. Mori, Tetsuya; Eguchi, Toshimasa (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000066220 A2 20000303, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-233065 19980819.

AB Title sealing material with good reliability is made of resin compn. having cured elastic modulus 300-2000 MPa at 125.degree.. Thus, a liq. crystal display device was sealed with a compn. comprising tetraglycidylldiaminodiphenylmethane 40, triglycidyl isocyanurate 30, Bisphenol A epoxy resin 30, Methyl Carbitol 20, adipic acid dihydrazide 15, and alumina 70 parts, cured at 160.degree. for 90 min, and tested in a pressure cooker at 125.degree. for 24 h, showing voltage retention 82%.

IT 259736-73-7P

(compn. contg.; prepn. of resin compn. for compactly sealing liq. crystal display)

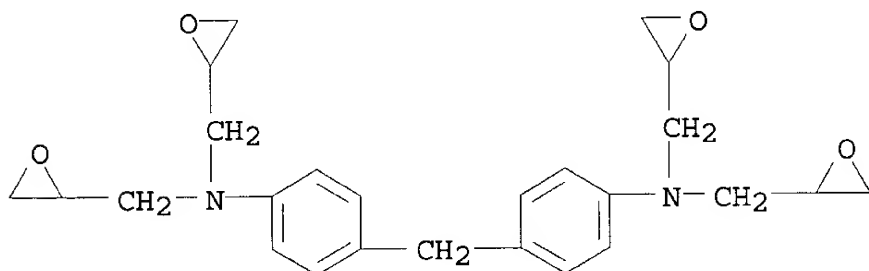
RN 259736-73-7 HCA

CN Hexanedioic acid, dihydrazide, polymer with N,N'-(methylenedi-4,1-phenylene)bis[N-(oxiranylmethyl)oxiranemethanamine], 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

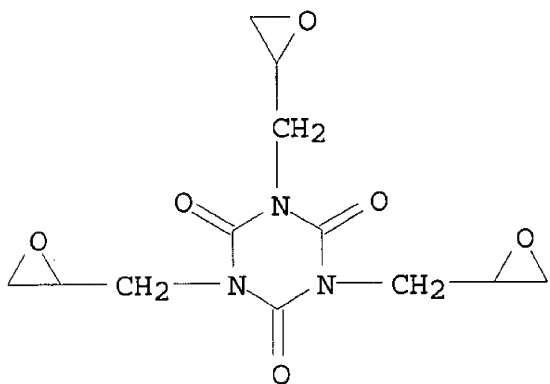
CRN 28768-32-3

CMF C25 H30 N2 O4



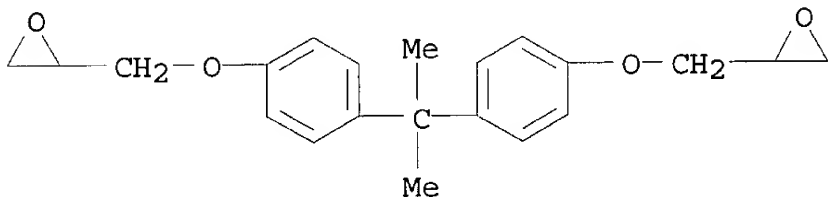
CM 2

CRN 2451-62-9  
CMF C12 H15 N3 O6



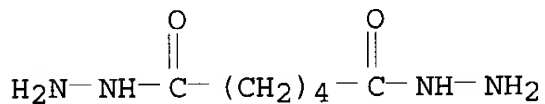
CM 3

CRN 1675-54-3  
CMF C21 H24 O4



CM 4

CRN 1071-93-8  
CMF C6 H14 N4 O2



IC ICM G02F001-1339

ICS C08L063-00; C08G059-00

CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 42, 74

IT 461-58-5DP, Dicyandiamide, polymers with epoxy compds.  
**259736-73-7P**

(compn. contg.; prepn. of resin compn. for compactly sealing liq.  
crystal display)

=> d 129 1-47 ti

L29 ANSWER 1 OF 47 HCA COPYRIGHT 2002 ACS

TI Ultraviolet-curable resin composition and photo **solder** resist ink containing the same

L29 ANSWER 2 OF 47 HCA COPYRIGHT 2002 ACS

TI Transparent epoxy resin compositions and optoelectronic semiconductor devices sealed therewith

L29 ANSWER 3 OF 47 HCA COPYRIGHT 2002 ACS

TI Oxetane-modified compounds and photocuring compounds derived therefrom, processes for preparation of both and curing compositions containing the photocuring compounds

L29 ANSWER 4 OF 47 HCA COPYRIGHT 2002 ACS

TI Epoxy resin sealing composition for optical semiconductors and sealed optical semiconductor devices

L29 ANSWER 5 OF 47 HCA COPYRIGHT 2002 ACS

TI **Solder** resist ink containing low halogen for **printed circuit board**

L29 ANSWER 6 OF 47 HCA COPYRIGHT 2002 ACS

TI Photo-curable resins based on epoxy resin (meth)acrylates, method for their manufacture and use in alkali-developable **solder** resist ink compositions

L29 ANSWER 7 OF 47 HCA COPYRIGHT 2002 ACS

TI Aqueous alkaline solution-soluble resin, radiation-sensitive composition containing the resin, and cured composition

L29 ANSWER 8 OF 47 HCA COPYRIGHT 2002 ACS

TI Ultraviolet curable resin composition and photosolder resist ink using the same

L29 ANSWER 9 OF 47 HCA COPYRIGHT 2002 ACS

TI Curable compositions containing epoxy resins and ultraviolet-curable resins

L29 ANSWER 10 OF 47 HCA COPYRIGHT 2002 ACS

TI Photosensitive polymer composition and **solder** photoresist ink composition for **circuit board**

L29 ANSWER 11 OF 47 HCA COPYRIGHT 2002 ACS

TI Positively photosensitive and thermosetting polymer compositions and formation of electrically insulating patterns using them

L29 ANSWER 12 OF 47 HCA COPYRIGHT 2002 ACS

TI Heat-curable **solder** resist composition, protective coating made of the cured composition, and its coating method

- L29 ANSWER 13 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive resin composition and **solder** resist ink using same
- L29 ANSWER 14 OF 47 HCA COPYRIGHT 2002 ACS  
TI Polymer composition containing titania-coated inorganic filler and light-coupled semiconductor device sealed with it
- L29 ANSWER 15 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive epoxy resin compositions with excellent pot-life stability, cured coating films thereof, and **printed circuit boards** therefrom
- L29 ANSWER 16 OF 47 HCA COPYRIGHT 2002 ACS  
TI (Meth)acrylate polymer composition, resist ink composition for **printed circuit board**, and their cured products
- L29 ANSWER 17 OF 47 HCA COPYRIGHT 2002 ACS  
TI Production of multilayer **wiring boards**
- L29 ANSWER 18 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photocurable thermosetting resin compositions and manufacture of multilayer **printed circuit boards** using them
- L29 ANSWER 19 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive prepolymer and photocurable and heat-curable **solder** resist ink composition.
- L29 ANSWER 20 OF 47 HCA COPYRIGHT 2002 ACS  
TI Alkali-soluble photosensitive thermosetting **solder** resist resin composition
- L29 ANSWER 21 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photocurable and heat-curable **solder** resist ink composition.
- L29 ANSWER 22 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive resin compositions forming flexible **solder** resist films, cured films thereof, and flexible **circuit boards** using the same
- L29 ANSWER 23 OF 47 HCA COPYRIGHT 2002 ACS  
TI Resist ink compositions
- L29 ANSWER 24 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive thermosetting resin composition, manufacture of **solder** mask, and **printed circuit board**
- L29 ANSWER 25 OF 47 HCA COPYRIGHT 2002 ACS

- TI Diluted alkali-developable resist ink composition, resist film, and **printed circuit board**
- L29 ANSWER 26 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive resin composition and photosensitive element for protecting film
- L29 ANSWER 27 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive resin compositions useful as **solder** resists for **printed circuit boards**
- L29 ANSWER 28 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive resin compositions useful as **solder** resists
- L29 ANSWER 29 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive resin composition for resist and photosensitive element
- L29 ANSWER 30 OF 47 HCA COPYRIGHT 2002 ACS  
TI Epoxy (meth)acrylate compositions for **solder** resists and their cured products
- L29 ANSWER 31 OF 47 HCA COPYRIGHT 2002 ACS  
TI Manufacture of **printed circuit board** using **solder** resist ink
- L29 ANSWER 32 OF 47 HCA COPYRIGHT 2002 ACS  
TI Alkali-developable resin compositions for **solder** resists and their cured products
- L29 ANSWER 33 OF 47 HCA COPYRIGHT 2002 ACS  
TI Resin composition containing fluorenylidene-based unsaturated carboxylic acid, **solder** resist composition, and their cured product
- L29 ANSWER 34 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive composition, photosensitive laminate, and manufacture of **printed circuit boards**
- L29 ANSWER 35 OF 47 HCA COPYRIGHT 2002 ACS  
TI UV-curable, storage-stable epoxy unsaturated carboxylate resin compositions
- L29 ANSWER 36 OF 47 HCA COPYRIGHT 2002 ACS  
TI Alkali-soluble **solder** resist compositions
- L29 ANSWER 37 OF 47 HCA COPYRIGHT 2002 ACS  
TI Heat-resistant **solder**-resistant resin compositions for coating **printed circuit boards**
- L29 ANSWER 38 OF 47 HCA COPYRIGHT 2002 ACS  
TI Production of **printed circuit board**

- L29 ANSWER 39 OF 47 HCA COPYRIGHT 2002 ACS  
TI Heat- or light-curable adhesive composition for electronic components
- L29 ANSWER 40 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive resin composition for **solder** mask
- L29 ANSWER 41 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive resin composition for **solder** mask
- L29 ANSWER 42 OF 47 HCA COPYRIGHT 2002 ACS  
TI Heat- and water-resistant epoxy resin compositions for glass laminates
- L29 ANSWER 43 OF 47 HCA COPYRIGHT 2002 ACS  
TI Photosensitive epoxy resin compositions for **solder** resist inks
- L29 ANSWER 44 OF 47 HCA COPYRIGHT 2002 ACS  
TI Negative-type photosensitive epoxy resin composition for coatings
- L29 ANSWER 45 OF 47 HCA COPYRIGHT 2002 ACS  
TI Conductive pastes curable with electron beam
- L29 ANSWER 46 OF 47 HCA COPYRIGHT 2002 ACS  
TI Flexible urethane polymer overlay films
- L29 ANSWER 47 OF 47 HCA COPYRIGHT 2002 ACS  
TI Flexible **boards** for **printed circuits**
- => d l29 2,4,5,8,10,12,13,15,16,17,18,22,24,34,38,47 cbib abs hitstr hitind
- L29 ANSWER 2 OF 47 HCA COPYRIGHT 2002 ACS  
136:233292 Transparent epoxy resin compositions and optoelectronic semiconductor devices sealed therewith. Akiyama, Masahito; Komori, Shinji; Segawa, Satoshi (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002080558 A2 20020319, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-186236 20010620. PRIORITY: JP 2000-187936 20000622.
- AB The compns. comprise (A) epoxy resins G[O-p-C6H4R-p-C6H4OCH2CH(OH)CH2]nO-p-C6H4R-p-C6H4OG (I; G = glycidyl; R = CMe2, CH2, both of which are included in a mol.; n = 1-7), (B) curing agents, (C) curing accelerators, and (D) transparent inorg. fillers with av. particle size 5-100 .mu.m and difference of refractive index between D and cured products without D .ltoreq.0.01. Thus, a compn. contg. I (R = 7:3 CMe2 and CH2; n = 6) 37, Epo Tohto YDF 2001 (bisphenol F epoxy resin) 17, MH 700 (mixt. of hexahydrophthalic anhydride and methylhexahydrophthalic anhydride) 14, SA 102 (curing initiator) 2, and glass fillers (av. particle size 20 .mu.m, contg. SiO2, CaO, and Al2O3) 30 parts was transfer-molded to give a test

piece showing light transmittance (at 400 nm, thickness 1 mm) 89%, high flowability, water absorbance 1.60%, and good **solder** crack resistance.

IT 403498-50-0P, Bisphenol A-bisphenol F-epichlorohydrin-MH 700-Tepic-S copolymer

(transparent epoxy resin compns. for **packaging** optoelectronic semiconductor devices)

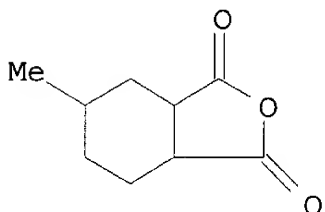
RN 403498-50-0 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, polymer with (chloromethyl)oxirane, hexahydro-5-methyl-1,3-isobenzofurandione, methylenebis[phenol] and 4,4'-(1-methylethylidene)bis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 19438-60-9

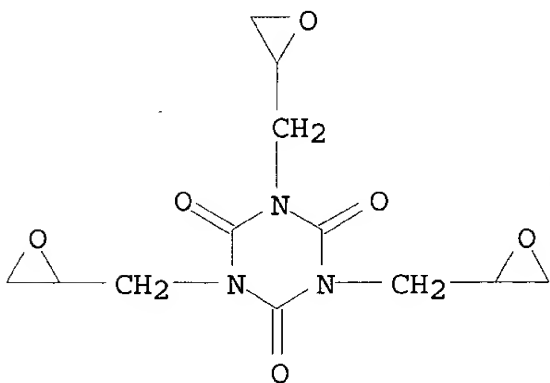
CMF C9 H12 O3



CM 2

CRN 2451-62-9

CMF C12 H15 N3 O6



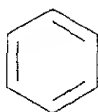
CM 3

CRN 1333-16-0

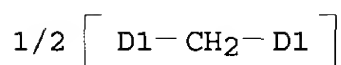
CMF C13 H12 O2



CCI IDS  
CDES 8:ID

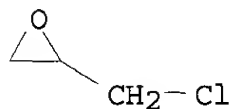


D1-OH



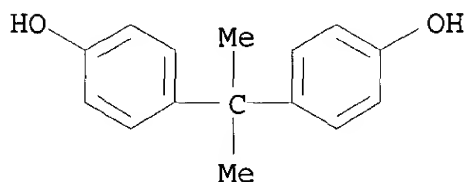
CM 4

CRN 106-89-8  
CMF C3 H5 Cl O



CM 5

CRN 80-05-7  
CMF C15 H16 O2



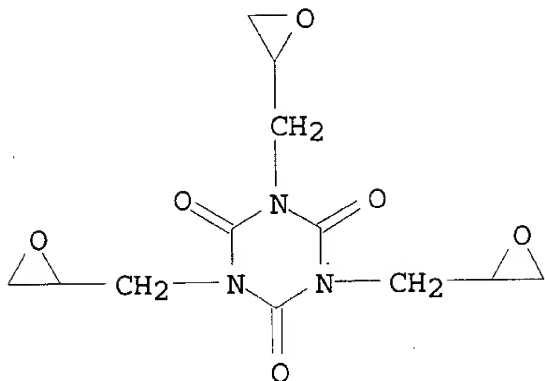
IC ICM C08G059-24  
ICS C08K003-22; C08L063-00; H01L023-29; H01L023-31; H01L031-02  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): **76**  
ST epoxy resin transparent optoelectronic semiconductor  
**packaging**; bisphenol epoxy hexahydrophthalic  
methylhexahydrophthalic anhydride resin; glass filler silica alumina  
calcium oxide epoxy

- IT Phenolic resins, uses  
(epoxy; transparent epoxy resin compns. for **packaging**  
optoelectronic semiconductor devices)
- IT Epoxy resins, uses  
(phenolic; transparent epoxy resin compns. for **packaging**  
optoelectronic semiconductor devices)
- IT Electronic **packaging** materials  
Optoelectronic semiconductor devices  
Transparent materials  
(transparent epoxy resin compns. for **packaging**  
optoelectronic semiconductor devices)
- IT Epoxy resins, uses  
(transparent epoxy resin compns. for **packaging**  
optoelectronic semiconductor devices)
- IT 1305-78-8, Calcium oxide, uses 1344-28-1, Alumina, uses  
7631-86-9, Silica, uses  
(filler in glass particles; transparent epoxy resin compns. for  
**packaging** optoelectronic semiconductor devices)
- IT 193417-28-6P, Bisphenol A-bisphenol F-epichlorohydrin-formaldehyde  
copolymer 403498-49-7P, Bisphenol A-bisphenol F-epichlorohydrin-  
Epo Tohto YDF 2001-MH 700 copolymer **403498-50-0P**,  
Bisphenol A-bisphenol F-epichlorohydrin-MH 700-Tepic-S copolymer  
(transparent epoxy resin compns. for **packaging**  
optoelectronic semiconductor devices)
- L29 ANSWER 4 OF 47 HCA COPYRIGHT 2002 ACS
- 136:103461 Epoxy resin sealing composition for optical semiconductors  
and sealed optical semiconductor devices. Segawa, Satoshi; Komori,  
Shinji; Akiyama, Masahito (Sumitomo Bakelite Co., Ltd., Japan).  
Jpn. Kokai Tokkyo Koho JP 2002012743 A2 20020115, 8 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 2000-195182 20000628.
- AB An epoxy sealing compn. with good transparency and **solder**  
resistance comprises (A) an epoxy resin contg. .gtoreq.2 epoxy  
groups per mol., (B) curing agents selected from (1) phenolic  
novolaks prep'd. from phenol derivs. contg. o- or p-substituent and  
(2) compds. having .gtoreq.2 phenolic hydroxy groups and having no  
.alpha.-hydrogen on the substituents of the phenol nucleus, (C) 5-70  
wt.% of a filler which comprises glass particles mainly composed of  
SiO<sub>2</sub>, B<sub>2</sub>O<sub>3</sub>, and Al<sub>2</sub>O<sub>3</sub>, (D) a curing promotor, (E) a P-contg.  
antioxidant, and (F) a hindered phenol-type antioxidant. The  
difference in refractive index between the filler and the cured  
resin compn. without the filler is <0.01.
- IT **28825-96-9**, TEPIC-S  
(epoxy resin sealing compn. for optical semiconductors and sealed  
optical semiconductor devices)
- RN 28825-96-9 HCA
- CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-,  
homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



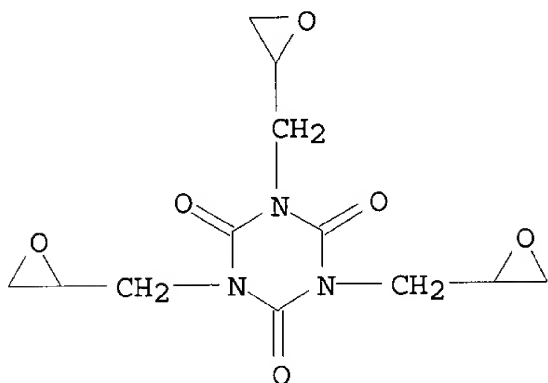
- IC ICM C08L063-02  
ICS C08G059-32; C08G059-62; C08K003-40; C08K005-13; C08K005-524;  
H01L023-29; H01L023-31; H01L031-02; H01L033-00
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76
- IT Antioxidants  
Crosslinking agents  
Electronic **packaging** materials  
Fillers  
Potting compositions  
(epoxy resin sealing compn. for optical semiconductors and sealed optical semiconductor devices)
- IT 25068-38-6, Epikote 1001 **28825-96-9**, TEPIC-S  
125370-98-1, VG 3101L 388602-09-3, EOCN 102S76  
(epoxy resin sealing compn. for optical semiconductors and sealed optical semiconductor devices)
- L29 ANSWER 5 OF 47 HCA COPYRIGHT 2002 ACS  
135:379533 **Solder** resist ink containing low halogen for  
**printed circuit board**. Oshima, Maki;  
Hashimoto, Soichi; Watanabe, Noriaki; Oda, Toshikazu (Gooh Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001324801 A2 20011122, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-58254 20010302. PRIORITY: JP 2000-59892 20000306; JP 2000-59913 20000306.
- AB The **solder** resist ink contains (A) UV-hardenable component, (B) photopolymn. initiator, and (C) a green-colored pigment contg. a halo-free yellow pigment and a halo-free black pigment. A **printed circuit board** equipped with a hardened green film is also claimed. The **solder** resist ink is prevented from toxic gas generation while combusting.
- IT **28825-96-9**, TEPIC-S  
(UV-hardenable **solder** resist ink contg. low halogen for **printed circuit board**)
- RN 28825-96-9 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



IC ICM G03F007-004  
ICS C08F002-44; C08F002-50; C08F299-00; G03F007-038; H05K003-28

CC 76-2 (Electric Phenomena)  
Section cross-reference(s): 74

ST **solder** resist ink UV hardenable resin halo free pigment

IT Carbon black, uses  
(Regal 400R, pigment; UV-hardenable **solder** resist ink contg. low halogen for **printed circuit board**)

IT Inks  
Pigments, nonbiological  
**Printed circuit boards**  
**Solder** resists  
(UV-hardenable **solder** resist ink contg. low halogen for **printed circuit board**)

IT Epoxy resins, uses  
(acrylic; UV-hardenable **solder** resist ink contg. low halogen for **printed circuit board**)

IT 36888-99-0  
(Paliotol Yellow D 1819, Paliotol Yellow K 1841, pigment; UV-hardenable **solder** resist ink contg. low halogen for **printed circuit board**)

IT 868-77-9, 2-Hydroxyethyl methacrylate 13048-33-4, 1,6-Hexanediol diacrylate 15625-89-5, Trimethylolpropane triacrylate 24599-21-1, Light Ester PM 26660-36-6, Blemmer GS-butyl acrylate copolymer **28825-96-9**, TEPIC-S 32120-16-4, Light Ester PA 55818-57-0, Epikote 828 acrylate 87912-85-4, Epiclon N 680 92880-74-5, Epikote 154 acrylate 114100-29-7, EPPN 201 acrylate 144046-04-8, Epiclon N 695 acrylate 158043-99-3, Acrylic acid-Epiclon N 680-tetrahydrophthalic anhydride copolymer

183200-93-3, Acrylic acid-Blemmer GS-methyl methacrylate-tetrahydrophthalic anhydride copolymer 244772-00-7, EHPE 3150 374624-53-0, acrylic acid-EHPE 3150-tetrahydrophthalic anhydride copolymer

(UV-hardenable **solder** resist ink contg. low halogen for **printed circuit board**)

IT 71868-10-5, Irgacure 907 82799-44-8, Kayacure DETX-S (photopolymn. initiator; UV-hardenable **solder** resist ink contg. low halogen for **printed circuit board**)

IT 67075-37-0, Paliogen Black S 0084 83524-75-8, Paliogen Black L 0086 (pigment; UV-hardenable **solder** resist ink contg. low halogen for **printed circuit board**)

L29 ANSWER 8 OF 47 HCA COPYRIGHT 2002 ACS

133:259344 Ultraviolet curable resin composition and photosolder resist ink using the same. Kubo, Tatsuya; Fuyjimoto, Masatoshi; Hashimoto, Soichi (Goo Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 1037111 A1 20000920, 19 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-105770 20000317. PRIORITY: JP 1999-72809 19990317; JP 2000-55760 20000301.

AB The invention relates to an UV-curable resin compn. used in UV-curable and thermosetting -type photo **solder** resist inks developed with aq. alkali soln., pixels and protective films for color filter and in the manuf. of **printed wiring boards** having fine-line, dense conductive pattern. An UV curable resin compn. includes (A) an UV curable resin, (B) an epoxy compd. having .gtoreq.2 epoxy groups in 1 mol, (C) a photopolymn. initiator and (D) a diluent. The UV curable resin (A) is obtained by the steps of polymg. an ethylenically unsatd. monomer component contg. (a) an ethylenically unsatd. monomer having epoxy group and (b) a compd. having .gtoreq.2 ethylenically unsatd. groups in 1 mol to prep. a copolymer, reacting the copolymer with (c) an ethylenically unsatd. monomer having carboxyl group to prep. a chem. intermediate, and reacting the chem. intermediate with (d) 1 of satd. and unsatd. polybasic acid anhydrides. This resin compn. will be preferably used to prep. a photo **solder** resist ink developable with dild. alk. aq. soln.

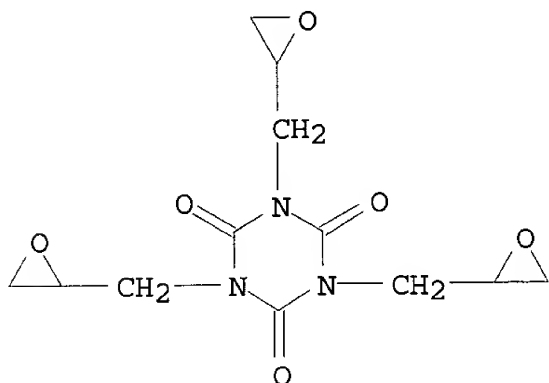
IT 28825-96-9, TEPIC S (liq.-type photosolder resist inks developable with aq. alk. soln. and contg.)

RN 28825-96-9 HCA  
CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



IC G03F007-038  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 Section cross-reference(s): 76  
 ST UV curable resin photo **solder** resist ink  
 IT **El ctric circuits**  
 Resists  
**Solder** resists  
 (liq.-type photosolder resist inks developable with aq. alk.  
 soln. and contg.)  
 IT 108-78-1, 1,3,5-Triazine-2,4,6-triamine, uses 1328-53-6,  
 Phthalocyanine green 7631-86-9, Silica, uses 7727-43-7, Barium  
 sulfate 26376-86-3, MODAFLOW 28825-96-9, TEPIC S  
 91594-04-6, EPICLON N 695  
 (liq.-type photosolder resist inks developable with aq. alk.  
 soln. and contg.)

L29 ANSWER 10 OF 47 HCA COPYRIGHT 2002 ACS  
 132:341182 Photosensitive polymer composition and **solder**  
 photoresist ink composition for **circuit board**.  
 Kobayashi, Noriaki; Tsukatani, Toshihide; Umetani, Shinichi (Nikka  
 Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP  
 2000131836 A2 20000512, 12 pp. (Japanese). CODEN: JKXXAF.  
 APPLICATION: JP 1998-307030 19981028.  
 AB The photosensitive polymer compn. contains (A) polyurethane acrylate  
 having CO<sub>2</sub>H groups obtained by polymn. of (a) compd. having  
 .gtoreq.2 OH groups and .gtoreq.1 CO<sub>2</sub>H group, (b)  
 .gtoreq.2-functional polyisocyanate having 6-membered ring  
 structure, and (c) (meth)acrylate having OH group, optionally with  
 (d) polyol compd. (B) photopolymn. initiator, and (C) diluent. The  
 title ink compn. contains the photosensitive polymer compn. and  
 .gtoreq.2-functional epoxy resin. The photosensitive polymer compn.  
 is developable with dil. alkali soln., and the compn. after being  
 hardened has high heat and weather resistance. The ink is  
 developable with dil. alkali soln., and the ink after being hardened  
 has high flexibility and resistance to **soldering** and  
 pressure-cooker treatment.

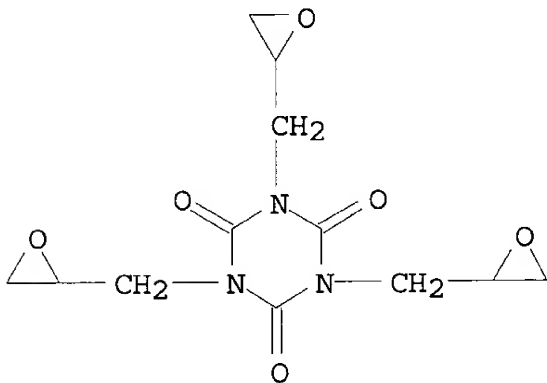
IT 28825-96-9, Araldite PT 810  
 (ink contg.; polyurethane acrylate photosensitive polymer compn.  
 for **solder** photoresist ink compn. for **circuit**  
**board**)

RN 28825-96-9 HCA  
 CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-,  
 homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



IC ICM G03F007-027  
 ICS G03F007-027; G03F007-004; G03F007-035  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 Section cross-reference(s): 38, 42, 76  
 ST polyurethane acrylate photosensitive polymer heat resistance;  
**solder** photoresist ink polyurethane acrylate epoxy resin;  
**circuit board solder** photoresist ink  
 flexibility  
 IT Polyurethanes, properties  
 (acrylates; polyurethane acrylate photosensitive polymer compn.  
 for **solder** photoresist ink compn. for **circuit**  
**board**)  
 IT Phenolic resins, properties  
 (epoxy, novolak, ink contg.; polyurethane acrylate photosensitive  
 polymer compn. for **solder** photoresist ink compn. for  
**circuit board**)  
 IT Epoxy resins, properties  
 (phenolic, novolak, ink contg.; polyurethane acrylate  
 photosensitive polymer compn. for **solder** photoresist  
 ink compn. for **circuit board**)  
 IT Inks  
 (photoresist; polyurethane acrylate photosensitive polymer compn.  
 for **solder** photoresist ink compn. for **circuit**  
**board**)

- IT Photoresists  
**Printed circuit boards**  
**Solder resists**  
 (polyurethane acrylate photosensitive polymer compn. for **solder** photoresist ink compn. for **circuit board**)
- IT 29570-58-9, Dipentaerythritol hexaacrylate  
 (diluent; polyurethane acrylate photosensitive polymer compn. for **solder** photoresist ink compn. for **circuit board**)
- IT 28825-96-9, Araldite PT 810 148619-51-6, Epo Tohto YDCN 702S  
 (ink contg.; polyurethane acrylate photosensitive polymer compn. for **solder** photoresist ink compn. for **circuit board**)
- IT 818-61-1DP, reaction products with urethane polymers  
 168569-36-6DP, reaction products with urethane polymers  
 266999-06-8DP, Dicyclohexylmethane diisocyanate-dimethylolbutanoic acid-2-hydroxyethyl acrylate copolymer, reaction products with hydroxyethyl acrylate 268204-63-3DP, Bisphenol A ethylene oxide adduct (1:2); cyclohexanedimethanol monoacrylate; dicyclohexylmethane diisocyanate; dimethylolbutanoic acid; xylylene diisocyanate copolymer, reaction products with cyclohexanedimethanol monoacrylate 268204-64-4DP, Bisphenol A ethylene oxide adduct (1:2); cyclohexanedimethanol monoacrylate; dicyclohexylmethane diisocyanate; dimethylolbutanoic acid; trimethylolpropane-xylylene diisocyanate copolymer, reaction products with cyclohexanedimethanol monoacrylate 268204-65-5DP, Bisphenol A ethylene oxide adduct (1:2); cyclohexanedimethanol monoacrylate; dicyclohexylmethane diisocyanate; dimethylolbutanoic acid; xylylene diisocyanate; Millionate MR 400 copolymer, reaction products with cyclohexanedimethanol monoacrylate  
 (polyurethane acrylate photosensitive polymer compn. for **solder** photoresist ink compn. for **circuit board**)
- L29 ANSWER 12 OF 47 HCA COPYRIGHT 2002 ACS  
 131:65889 Heat-curable **solder** resist composition, protective coating made of the cured composition, and its coating method. Morino, Hiromitsu; Kakinuma, Keiko; Sasaki, Masaki (Taiyo Ink Seizo K. K., Japan). Jpn. Kokai Tokkyo Koho JP 11158252 A2 19990615 Heisei, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-247724 19980819. PRIORITY: JP 1997-257953 19970908.
- AB The heat-curable **solder** resist compn. comprises (A) a polycarboxylate contg. .gtoreq.2 carboxyl groups and having an acid value of 20-120 mgKOH/g, a glass transition temp. of -60-40.degree., and a wt. av. mol. wt. of 5,000-100,000, (B) a resin contg. .gtoreq.2 epoxy groups, and (C) a solvent, and optionally (D) a mercapto compd. The heat-curable **solder** resist compn. is suitable for manufg. flexible **printed circuit boards**, tape carrier **packag s**, and electroluminescent panels. The protective coating is prepd. by a



screen coating method, slit coating method, roll coating method, spray coating method, or curtain coating method.

IT 28825-96-9, Tepic H

(Tepic H; in heat-curable **solder** resist compn. for manufg. flexible protective coating)

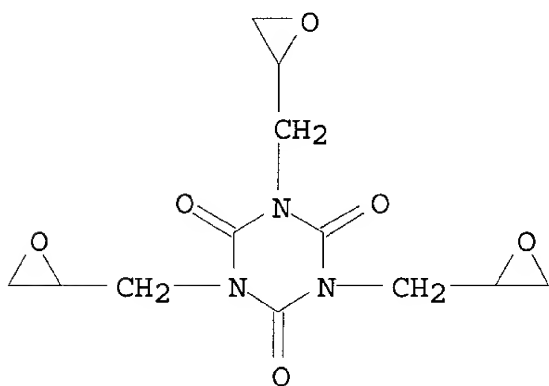
RN 28825-96-9 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



IT 228247-39-0, Acrylic acid-isobutyl methacrylate-2-ethylhexyl methacrylate-TEPIC H copolymer 228247-40-3

(protective coating made of heat-cured **solder** resist compn.)

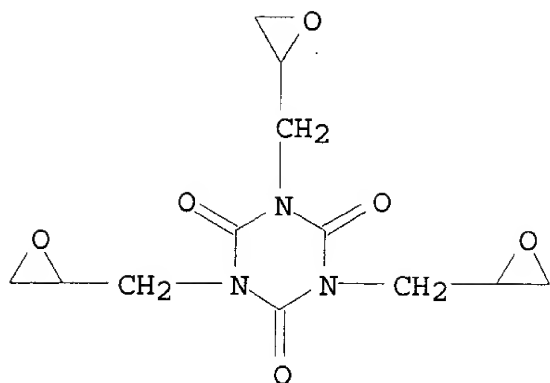
RN 228247-39-0 HCA

CN 2-Propenoic acid, 2-methyl-, 2-ethylhexyl ester, polymer with 2-methylpropyl 2-methyl-2-propenoate, 2-propenoic acid and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

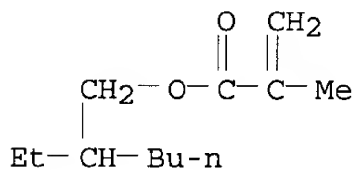
CMF C12 H15 N3 O6



CM 2

CRN 688-84-6

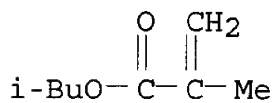
CMF C12 H22 O2



CM 3

CRN 97-86-9

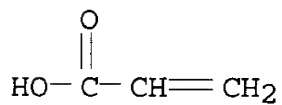
CMF C8 H14 O2



CM 4

CRN 79-10-7

CMF C3 H4 O2



RN 228247-40-3 HCA

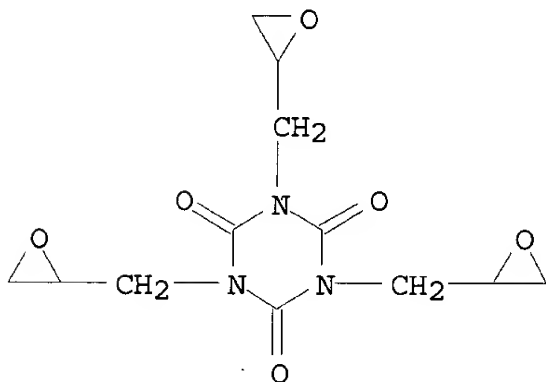
CN 2-Propenoic acid, 2-methyl-, butyl ester, polymer with dodecyl

2-methyl-2-propenoate, 2-propenoic acid and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI)  
(CA INDEX NAME)

CM 1

CRN 2451-62-9

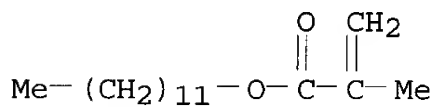
CMF C12 H15 N3 O6



CM 2

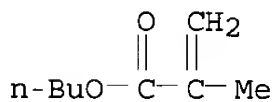
CRN 142-90-5

CMF C16 H30 O2



CM 3

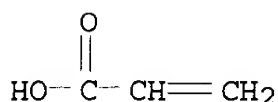
CRN 97-88-1

CMF C8 H14 O2

CM 4

CRN 79-10-7

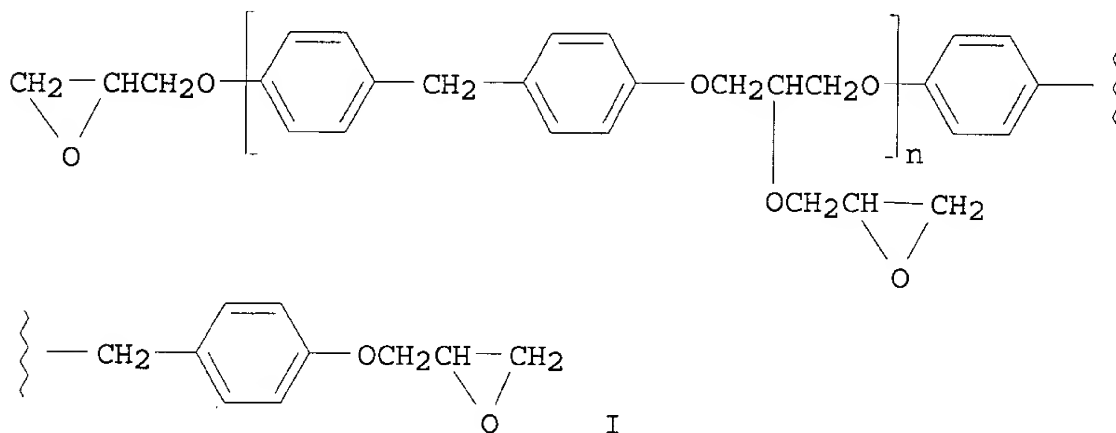
CMF C3 H4 O2



- IC ICM C08G059-42  
ICS C08F220-04; C08F220-18; C09D163-00; H05K003-28
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 42, 76
- ST heat curable **solder** resist compn protective coating
- IT Coating materials  
Electronic **packaging** materials  
**Printed circuit boards**  
Screen printing  
**Solder** resists  
(heat-curable **solder** resist compn., flexible protective coating made of the cured compn., and its coating method)
- IT Epoxy resins, uses  
(in heat-curable **solder** resist compn. for manufg. flexible protective coating)
- IT Electroluminescent devices  
(panels; heat-curable **solder** resist compn., flexible protective coating made of the cured compn., and its coating method)
- IT 4420-74-0, A 189  
(A 189; in heat-curable **solder** resist compn. for manufg. flexible protective coating)
- IT 25068-38-6, Epikote 828  
(Epikote 828; in heat-curable **solder** resist compn. for manufg. flexible protective coating)
- IT 28825-96-9, Tepic H  
(Tepic H; in heat-curable **solder** resist compn. for manufg. flexible protective coating)
- IT 42378-40-5P, Acrylic acid-butyl methacrylate-lauryl methacrylate copolymer 128653-14-5P, Acrylic acid-isobutyl methacrylate-2-ethylhexyl methacrylate copolymer  
(in heat-curable **solder** resist compn. for manufg. flexible protective coating)
- IT 37348-52-0, Den 431  
(in heat-curable **solder** resist compn. for manufg. flexible protective coating)
- IT 228247-39-0, Acrylic acid-isobutyl methacrylate-2-ethylhexyl methacrylate-TEPIC H copolymer 228247-40-3 228247-41-4, Acrylic acid-butyl methacrylate-lauryl methacrylate-Epikote 828 copolymer 228247-42-5, Acrylic acid-butyl methacrylate-lauryl methacrylate-DEN 431 copolymer  
(protective coating made of heat-cured **solder** resist compn.)

130:259548 Photosensitive resin composition and **solder** resist ink using same. Yanagawa, Makoto; Azuma, Kentaro (Tamura Kaken Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11065117 A2 19990305 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-230535 19970827.

GI



AB The title resin compn. contains (a) a CO<sub>2</sub>H-contg. photosensitive prepolymer prepd. by reacting an epoxy resin I (n .gtoreq. 1) with 0.2-1.2 mol per epoxy equiv of an ethylenic unsatd. carboxylic acid followed by 0.2-1.0 mol per epoxy equiv of a polybasic carboxylic acid and/or its anhydride, (b) a powdery silica, (c) a photoreactive dilg. agent, (d) a photopolymn. initiator, and (e) a thermosetting component. A **solder** resist ink for **circuit board** is also claimed, using the compn. as a base agent. The compn. useful as a **solder** resist provides a cured film with good flexibility and moisture resistance.

IT 28825-96-9, TEPIC S

(**solder** resist ink compn. contg. epoxy resin carboxylate and powdery silica)

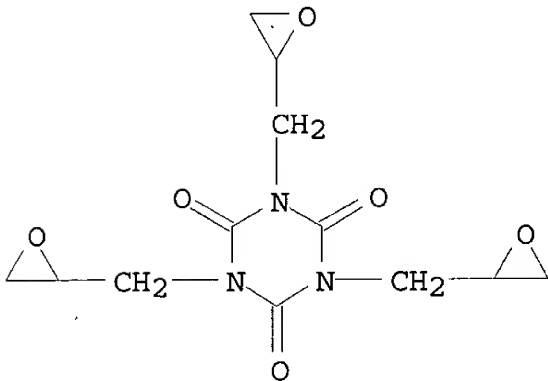
RN 28825-96-9 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



- IC ICM G03F007-038  
ICS C08G059-17; C09D011-02; G03F007-004; G03F007-027; G03F007-028;  
H01L021-027; H05K003-06; H05K003-28
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 38, 76
- ST **solder** resist ink epoxy resin carboxylate; silica powder  
photosensitive resin **solder** resist
- IT **Solder** resists  
(**solder** resist ink compn. contg. epoxy resin  
carboxylate and powdery silica)
- IT Epoxy resins, uses  
(**solder** resist ink compn. contg. epoxy resin  
carboxylate and powdery silica)
- IT 7631-86-9, Silica, uses  
(**solder** resist ink compn. contg. epoxy resin  
carboxylate and powdery silica)
- IT 79-10-7DP, Acrylic acid, reaction products with epichlorohydrin-  
modified epoxy resin 85-42-7DP, Hexahydrophthalic anhydride,  
reaction products with epichlorohydrin-modified epoxy resin  
106-89-8DP, Epichlorohydrin, reaction products with epoxy resin,  
acrylic acid, and hexahydrophthalic anhydride 178818-66-1DP,  
reaction products with epichlorohydrin, acrylic acid, and  
hexahydrophthalic anhydride  
(**solder** resist ink compn. contg. epoxy resin  
carboxylate and powdery silica)
- IT 28825-96-9, TEPIC S 29570-58-9, Dipentaerythritol  
hexaacrylate  
(**solder** resist ink compn. contg. epoxy resin  
carboxylate and powdery silica)

L29 ANSWER 15 OF 47 HCA COPYRIGHT 2002 ACS  
127:332533 Photosensitive epoxy resin compositions with excellent  
pot-life stability, cured coating films thereof, and **printed  
circuit boards** therefrom. Yanagawa, Makoto;  
Yamamoto, Hiroshi (Tamura Kaken Co., Ltd., Japan). Jpn. Kokai  
Tokkyo Koho JP 09255741 A2 19970930 Heisei, 10 pp. (Japanese).

CODEN: JKXXAF. APPLICATION: JP 1996-91771 19960322.

AB Title compns., useful as resist inks, comprise photosensitive prepolymers prep'd. from (i) carboxy-contg. epoxy acrylate given by esterification of novolak epoxy resins with unsatd. monocarboxylic acids in the presence of metal carboxylates, tertiary amines, and/or quaternary ammonium salts and (ii) polybasic acids and/or their anhydrides, photopolymerizable dilutants, photopolymer. initiators, and thermosetting components. Thus, 180 parts Epikote 154 (epoxy equiv. 180) was treated with 72 parts acrylic acid at 110-120.degree. in the presence of hydroquinone, dimethylbenzylamine, Cr naphthenate in carbitol acetate and further treated with 76 parts tetrahydrophthalic anhydride at 110-120.degree. to give a photosensitive prepolymer (acid value 54, av. mol. wt. 6500), 100 parts of which was blended with dipentaerythritol hexaacrylate 8.0, 2-methyl-1-[4-(methylthio)phenyl]-2-morpholinopropan-1-one 8.0, triglycidyltris(2-hydroxyethyl) isocyanurate 8.0, phthalocyanine green 0.5, and talc 8.9 parts to give a resist ink showing no viscosity change after .gtoreq.7-day storage. Then, the ink was screen-**printed** on a **circuit board** and developed to give a coating film showing excellent **solder** -, HCl-, and CH<sub>2</sub>Cl<sub>2</sub> resistance.

IT 197863-74-4P

(photosensitive epoxy resin compns. with good pot-life stability for manuf. of **printed circuit boards**)

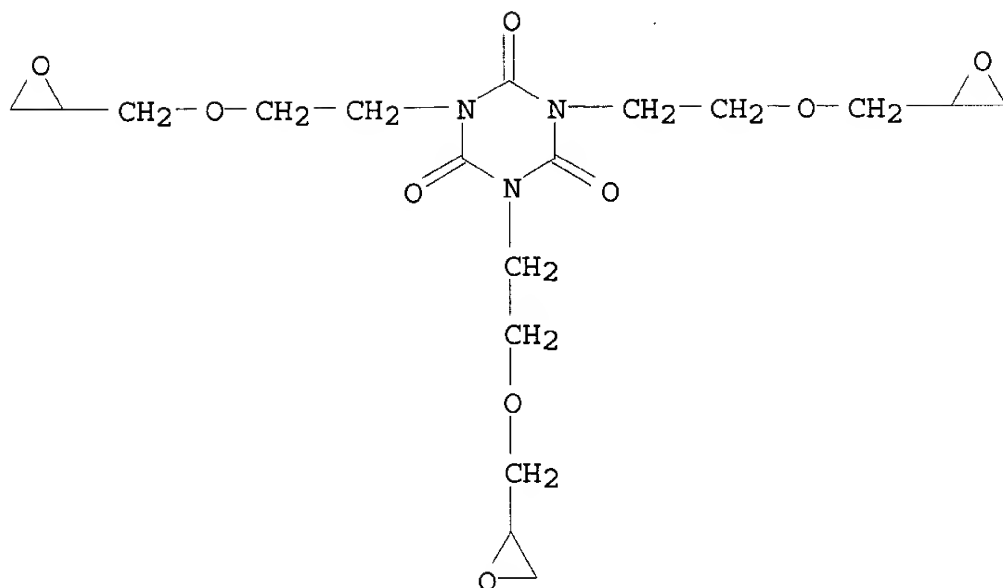
RN 197863-74-4 HCA

CN 2-Propenoic acid, 2-[[3-[(1-oxo-2-propenyl)oxy]-2,2-bis[[[(1-oxo-2-propenyl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with Epikote 154 2-propenoate, 3a,4,7,7a-tetrahydro-1,3-isobenzofurandione and 1,3,5-tris[2-(oxiranylmethoxy)ethyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 108673-46-7

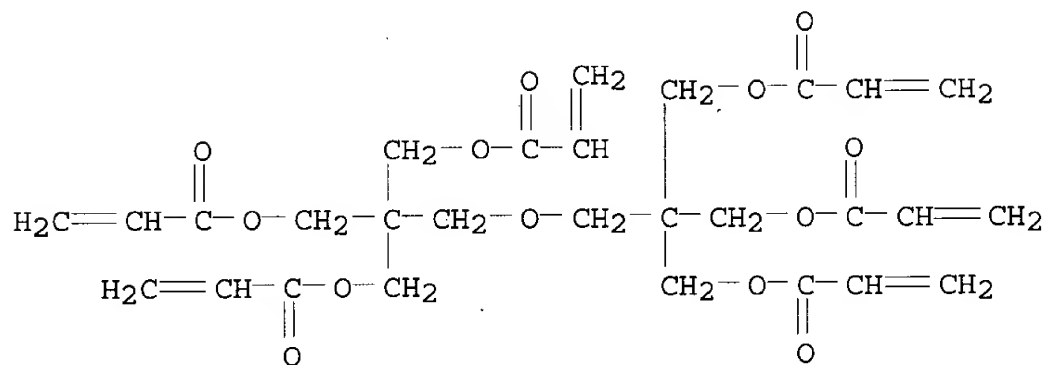
CMF C18 H27 N3 O9



CM 2

CRN 29570-58-9

CMF C28 H34 O13

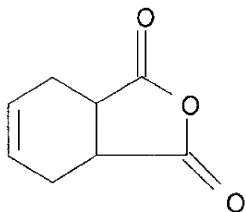


CM 3

CRN 85-43-8

CMF C8 H8 O3





CM 4

CRN 92880-74-5

CMF C3 H4 O2 . x Unspecified

CDES 8:GD,ESTER

CM 5

CRN 63939-13-9

CMF Unspecified

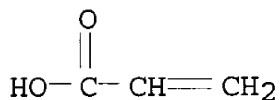
CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 6

CRN 79-10-7

CMF C3 H4 O2



IT 197863-75-5P

(photosensitive epoxy resin compns. with good pot-life stability  
for **printed circuit boards**)

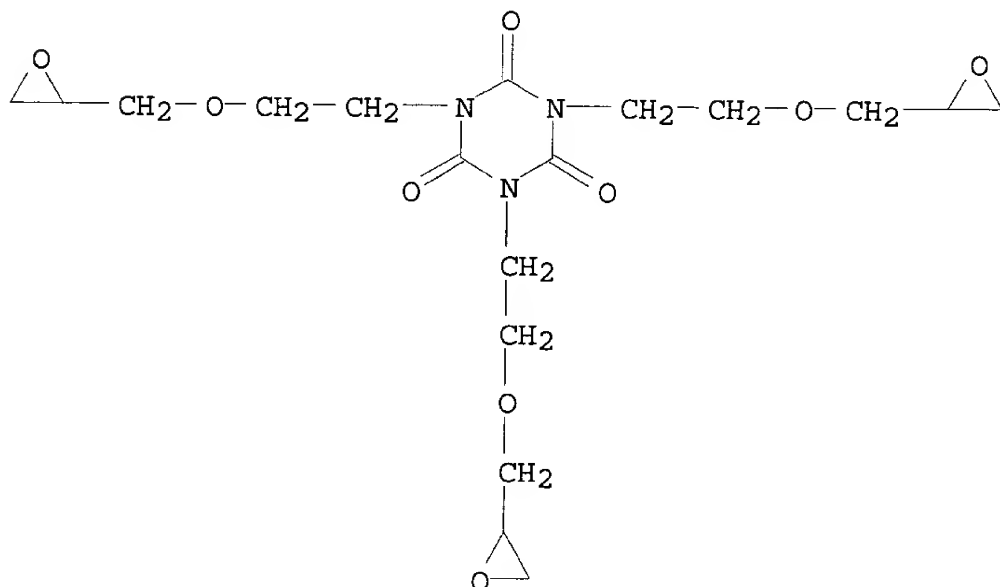
RN 197863-75-5 HCA

CN 2-Propenoic acid, 2-[[3-[(1-oxo-2-propenyl)oxy]-2,2-bis[[[(1-oxo-2-propenyl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with Epiclon N 680 2-propenoate, 3a,4,7,7a-tetrahydro-1,3-isobenzofurandione and 1,3,5-tris[2-(oxiranylmethoxy)ethyl]-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

CM 1

CRN 108673-46-7

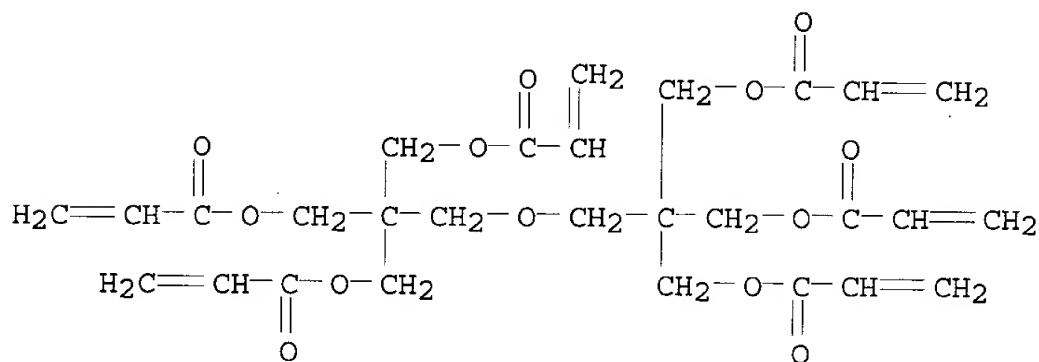
CMF C18 H27 N3 O9



CM 2

CRN 29570-58-9

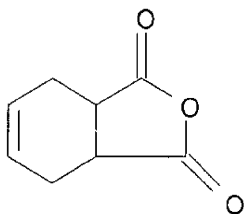
CMF C28 H34 O13



CM 3

CRN 85-43-8

CMF C8 H8 O3



CM 4

CRN 101963-22-8  
 CMF C3 H4 O2 . x Unspecified  
 CDES 8:GD,ESTER

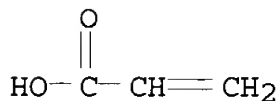
CM 5

CRN 87912-85-4  
 CMF Unspecified  
 CCI PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

CM 6

CRN 79-10-7  
 CMF C3 H4 O2



IC ICM C08F290-06  
 ICS C08G059-17; C09D004-00; C09D004-02; H05K003-28  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 74, 76  
 IT Epoxy resins, uses  
 (acrylic; photosensitive epoxy resin compns. with good pot-life  
 stability for **printed circuit boards**  
 )  
 IT Naphthenic acids, uses  
 (chromium salts; photosensitive epoxy resin compns. with good  
 pot-life stability for **printed circuit  
 boards**)  
 IT Light-sensitive materials  
**Printed circuit boards**  
 (photosensitive epoxy resin compns. with good pot-life stability  
 for manuf. of **printed circuit boards**  
 )  
 IT 197863-74-4P

(photosensitive epoxy resin compns. with good pot-life stability for manuf. of **printed circuit boards**)

IT 103-83-3, Dimethylbenzylamine  
(photosensitive epoxy resin compns. with good pot-life stability for **printed circuit boards**)

IT 197863-75-5P  
(photosensitive epoxy resin compns. with good pot-life stability for **printed circuit boards**)

L29 ANSWER 16 OF 47 HCA COPYRIGHT 2002 ACS

127:324470 (Meth)acrylate polymer composition, resist ink composition for **printed circuit board**, and their cured products. Mori, Satoshi; Yokoshima, Minoru (Nippon Kayaku Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09241328 A2 19970916 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-79339 19960308.

AB The both compns. contain (A) a (meth)acrylate polymer comprising (a) a copolymer of 10-50 parts compd. having 1 epoxy group and 1 ethylenically unsatd. group and 50-90 parts acryloylmorpholine and/or a reaction product of a and (meth)acrylic acid, (B) a diluent, (C) a photopolymn. initiator, and (D) a curing component. The cured products of the compns. are also claimed. The compn. showed good resistance to a developer and gave a cured product with good **solder**-heat resistance.

IT 28825-96-9, TEPIC-S  
(morpholine-contg. (meth)acrylate polymer resist ink compn. for **printed circuit board**)

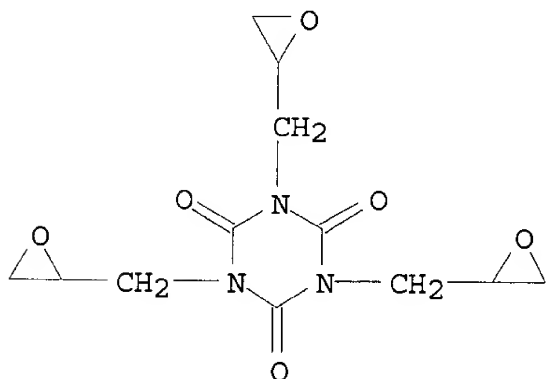
RN 28825-96-9 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



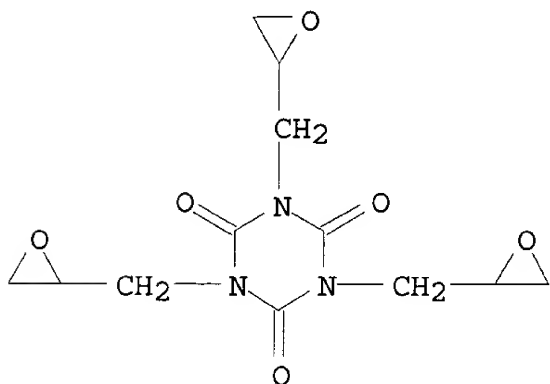
IC ICM C08F220-26

- ICS C08F002-48; C08F220-32; C08F290-04; C09D004-06; C09D  
C09D133-14; G03F007-027; G03F007-038; H05K003-28; C0
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 37, 76
- ST acrylate polymer resist ink **printed circuit**;  
heat resistance acrylate polymer resist ink; acryloylmorpholine  
epoxy resin resist ink
- IT Inks  
Photoresists  
(morpholine-contg. (meth)acrylate polymer resist ink compn. for  
**printed circuit board**)
- IT Epoxy resin acrylates  
Epoxy resins, uses  
Novolak epoxy resins  
(morpholine-contg. (meth)acrylate polymer resist ink compn. for  
**printed circuit board**)
- IT 143039-37-6P, Acryloylmorpholine-glycidyl methacrylate copolymer  
197591-92-7P, Acryloylmorpholine-glycidyl methacrylate copolymer  
acrylate  
(morpholine-contg. (meth)acrylate polymer resist ink compn. for  
**printed circuit board**)
- IT 461-58-5, Dicyandiamide **28825-96-9**, TEPIC-S 77641-99-7,  
Kayarad DPHA 81775-74-8, EPPN 201  
(morpholine-contg. (meth)acrylate polymer resist ink compn. for  
**printed circuit board**)
- L29 ANSWER 17 OF 47 HCA COPYRIGHT 2002 ACS
- 127:271414 Production of multilayer **wiring boards**.  
Takiguchi, Yoshikazu; Obiya, Hiroyuki; Takahashi, Toru; Shiroyama,  
Taisuke; Tazawa, Kenji (Tokyo Ohka Kogyo Co., Ltd., Japan). Eur.  
Pat. Appl. EP 793406 A1 19970903, 32 pp. DESIGNATED STATES: R: DE,  
FR, GB, IT. (English). CODEN: EPXXDW. APPLICATION: EP 1997-103255  
19970227. PRIORITY: JP 1996-69083 19960229; JP 1996-220767  
19960805; JP 1996-242624 19960826; JP 1996-242625 19960826; JP  
1996-277475 19960927.
- AB In an improved process for producing a multilayer **wiring**  
**board** that has a plurality of conductor patterns and an  
interlevel dielec. layer on .gtoreq.1 surface of a substrate, with  
**via** holes or trenchlike channels provided at specified sites  
of the interlevel dielec. layer to establish an elec.  
interconnection between the conductor patterns, prior to the  
provision of the **via** holes or trenchlike channels, a  
coating having resistance to sandblasting is formed in a pattern  
over the interlevel dielec. layer and then sandblasting is performed  
to remove the interlevel dielec. layer in selected areas to form the  
**via** holes or trenchlike channels and, thereafter, the  
coating having resistance to sandblasting is removed, followed by  
the provision of a conductive layer.
- IT **28825-96-9**, Tetric SP  
(formation of interconnections in multilayer **wiring**  
**boards** using)

RN 28825-96-9 HCA  
 CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9  
 CMF C12 H15 N3 O6



IC ICM H05K003-00  
 ICS H05K003-46  
 CC **76-14** (Electric Phenomena)  
 Section cross-reference(s): 38  
 ST multilayer **wiring board** prodn  
 IT Crosslinking agents  
 (2-Methylimidazole azine epoxy; formation of interconnections in multilayer **wiring boards** using)  
 IT Polyurethanes, processes  
 (acrylate and methacrylate oligomers; formation of interconnections in multilayer **wiring boards** using)  
 IT Interconnections (electric)  
 (formation of interconnections in multilayer **wiring boards**)  
 IT Epoxy resins, processes  
 Novolaks  
 Phenolic resins, processes  
 Polyamides, processes  
 Polyimides, processes  
 Polymers, processes  
 (formation of interconnections in multilayer **wiring boards** using)  
 IT Electroless plating  
 Electroplating  
 Sandblasting  
 (in formation of interconnections in multilayer **wiring boards**)  
 IT **Printed circuit boards**

- (multilayer; prodn. of)
- IT Coatings  
(sandblasting-resistant; in formation of interconnections in multilayer **wiring boards**)
- IT Oligomers  
(urethane acrylate and methacrylate; formation of interconnections in multilayer **wiring boards** using)
- IT 149-30-4, 2-Mercaptobenzothiazole 461-58-5, Dicyandiamide 9004-34-6, Cellulose, processes 15625-89-5, Trimethylolpropane triacrylate 25068-38-6, Epikote 828 **28825-96-9**, Tepic SP 29570-58-9, Dipentaerythritol hexaacrylate 100091-90-5, Epiclon N 673 175834-65-8, Kayarad TCR 1025  
(formation of interconnections in multilayer **wiring boards** using)
- IT 409-21-2, Silicon carbide (SiC), processes  
(sandblasting with; in formation of interconnections in multilayer **wiring boards**)
- IT 196004-25-8, Ordyl BF 603 196004-26-9, Ordyl BF 602T3 196004-55-4, Ordyl .alpha.-400  
(sandblasting-resistant film; formation of interconnections in multilayer **wiring boards** using)
- L29 ANSWER 18 OF 47 HCA COPYRIGHT 2002 ACS
- 127:263663 Photocurable thermosetting resin compositions and manufacture of multilayer **printed circuit boards** using them. Fukushima, Kazunobu; Kakinuma, Keiko; Saito, Teruo (Taiyo Ink Seizo K. K., Japan). Jpn. Kokai Tokkyo Koho JP 09235355 A2 19970909 Heisei, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-65156 19960228.
- AB Title compns. comprise (A) polycarboxylic acid resins having .gtoreq.2 CO<sub>2</sub>H groups in a mol. (softening point 30-110.degree.; acid value 80-250 mg-KOH/g), (B) compds. having an ethylenically unsatd. bond in a mol., (C) compds. having an ethylenically unsatd. bond and a CO<sub>2</sub>H group in a mol., (D) compds. having .gtoreq.2 epoxy groups in a mol., and (E) photopolymn. initiators. Multilayer **printed circuit boards** are manufd. by applying the above compns. on a conductor **circuit-formed printed circuit board**, irradiating UV to form adhesive layers, laminating Cu foils on the adhesive layers by hot-pressing, selectively etching the Cu foils according to predetd. blind **via** hole patterns to form microholes, and dissolving the adhesive layers under the microholes with weak alkali solns. to give blind **via** holes and expose the conductor circuit. Thus, a compn. contg. Joncryn 68, hydroquinone, 2-hydroxyethyl methacrylate, mono(2-methacryloyloxypropyl)succinic acid, benzyldimethylketal, KS 66, talc, Epikote 1001, and .alpha.-triglycidyl isocyanurate showed good workability and gave a high-quality multilayer **printed circuit board**.
- IT 196398-59-1P 196401-18-0P  
(photocurable thermosetting resin compns. and manuf. of

multilayer printed circuit boards  
using them)

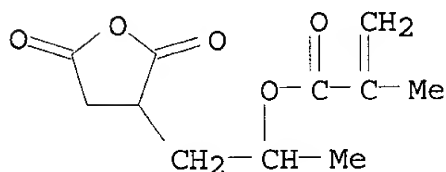
RN 196398-59-1 HCA

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with (chloromethyl)oxirane, ethenylbenzene, 4,4'-(1-methylethylidene)bis[phenol], 1-methyl-2-(tetrahydro-2,5-dioxo-3-furanyl)ethyl 2-methyl-2-propenoate, 2-propenoic acid and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) . (CA INDEX NAME)

CM 1

CRN 196398-58-0

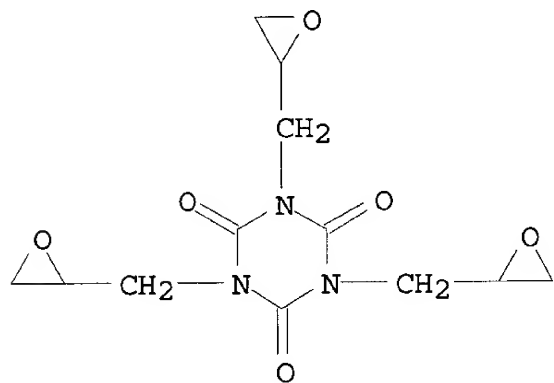
CMF C11 H14 O5



CM 2

CRN 2451-62-9

CMF C12 H15 N3 O6

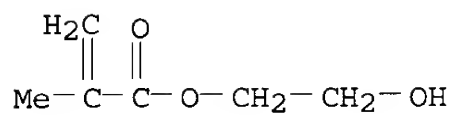


CM 3

CRN 868-77-9

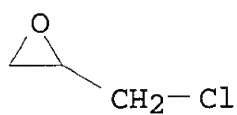
CMF C6 H10 O3





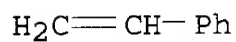
CM 4

CRN 106-89-8  
CMF C3 H5 Cl O



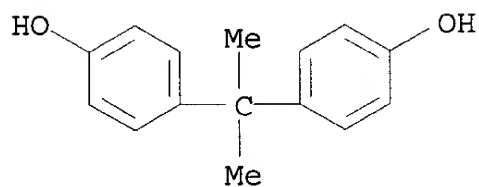
CM 5

CRN 100-42-5  
CMF C8 H8



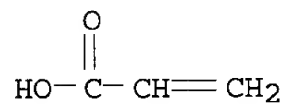
CM 6

CRN 80-05-7  
CMF C15 H16 O2



CM 7

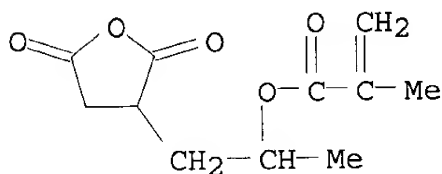
CRN 79-10-7  
CMF C3 H4 O2



RN 196401-18-0 HCA  
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with  
(chloromethyl)oxirane, cyanoguanidine, 4,4'-(1-methylethylidene)bis[phenol], 2-methylpropyl 2-methyl-2-propenoate,  
1-methyl-2-(tetrahydro-2,5-dioxo-3-furanyl)ethyl  
2-methyl-2-propenoate, 2-propenoic acid and 1,3,5-  
tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI)  
(CA INDEX NAME)

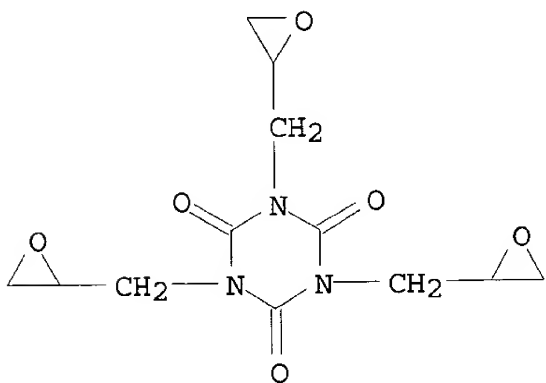
CM 1

CRN 196398-58-0  
CMF C11 H14 O5



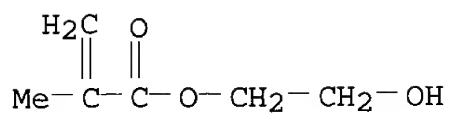
CM 2

CRN 2451-62-9  
CMF C12 H15 N3 O6



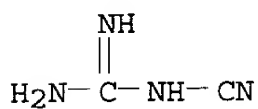
CM 3

CRN 868-77-9  
CMF C6 H10 O3



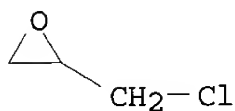
CM 4

CRN 461-58-5  
CMF C2 H4 N4



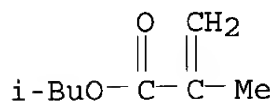
CM 5

CRN 106-89-8  
CMF C3 H5 Cl O



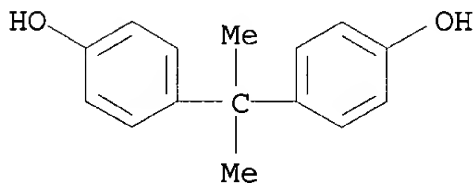
CM 6

CRN 97-86-9  
CMF C8 H14 O2



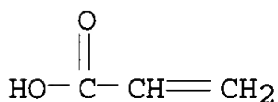
CM 7

CRN 80-05-7  
CMF C15 H16 O2



CM 8

CRN 79-10-7  
CMF C3 H4 O2



- IC ICM C08G059-40  
ICS C09J004-00; C09J163-00; G03F007-027; H05K003-46; C09D004-00;  
C09D163-00
- CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 38, 76
- ST photocurable thermosetting resin blend; multilayer **printed circuit board** manuf; polycarboxylic acid resin blend; ethylenic unsatd compd blend; carboxylic ethylenic unsatd compd epoxy blend; photopolymn catalyst thermosetting resin blend
- IT **Printed circuit boards**  
(multilayer; photocurable thermosetting resin compns. and manuf. of multilayer **printed circuit boards** using them)
- IT Photopolymerization catalysts  
(photocurable thermosetting resin compns. and manuf. of multilayer **printed circuit boards** using them)
- IT **196398-59-1P 196401-18-0P**  
(photocurable thermosetting resin compns. and manuf. of multilayer **printed circuit boards** using them)
- IT 947-19-3, 1-Hydroxycyclohexyl phenyl ketone 24650-42-8  
(photopolymn. catalyst; photocurable thermosetting resin compns. and manuf. of multilayer **printed circuit boards** using them)
- L29 ANSWER 22 OF 47 HCA COPYRIGHT 2002 ACS  
126:179053 Photosensitive resin compositions forming flexible **solder resist** films, cured films thereof, and flexible **circuit boards** using the same. Yanagawa, Makoto; Hoshino, Masato; Azuma, Kentaro (Tamura Kaken Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 09005997 A2 19970110 Heisei, 12 pp.

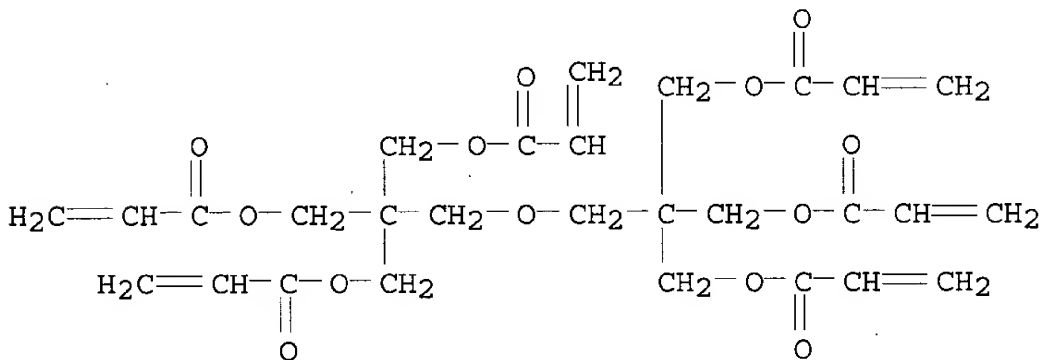
AB The title compns. contain carboxy group-contg. photosensitive prepolymers, photopolymerizable reactive thinners, photoinitiators, thermosetting components, and reaction products from novolak epoxy resins and rubber-modified bisphenol A epoxy resins. A rubber-modified epoxy resin was prepd. from Epiclon 860 and Hycar CTBN 1300X13, reacted with Epiclon N-665 and acrylic acid, and treated with hexahydrophthalic anhydride to obtain a photosensitive prepolymer which was used with dipentaerythritol hexaacrylate, Irgacure 907, Kayacure DETX, BaSO<sub>4</sub>, talc, Modaflow, phthalocyanine green, TEPIC-S, and dicyandiamide.

(photosensitive resin compns. forming flexible **solder**  
resist films, cured films thereof, and flexible **circuit**  
**boards** using the same)

CN 2-Propenoic acid, polymer with 1,3-butadiene, (chloromethyl)oxirane, cyanoguanidine, Epiclon N 665, hexahydro-1,3-isobenzofurandione, 4,4'-(1-methylethylidene)bis[phenol], 2-[[[3-[(1-oxo-2-propenyl)oxy]-2,2-bis[[[(1-oxo-2-propenyl)oxy]methyl]propoxy]methyl]-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate, 2-propenenitrile and 1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)

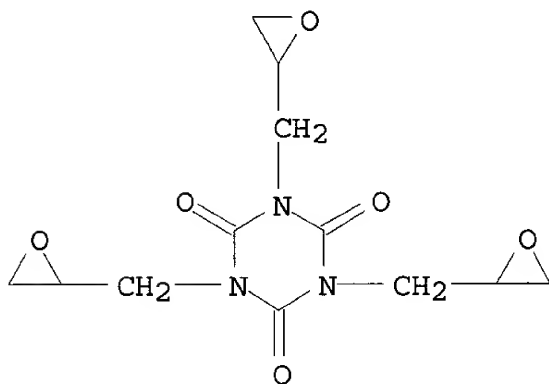
CRN 96957-48-1  
CMF Unspecified  
CCI PMS, MAN

CRN 29570-58-9  
CMF C28 H34 O13



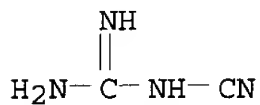
CM 3

CRN 2451-62-9  
CMF C12 H15 N3 O6



CM 4

CRN 461-58-5  
CMF C2 H4 N4



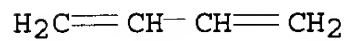
CM 5

CRN 107-13-1  
CMF C3 H3 N



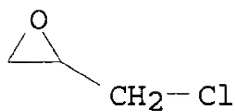
CM 6

CRN 106-99-0  
CMF C4 H6



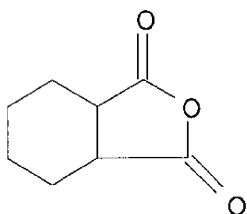
CM 7

CRN 106-89-8  
CMF C3 H5 Cl O



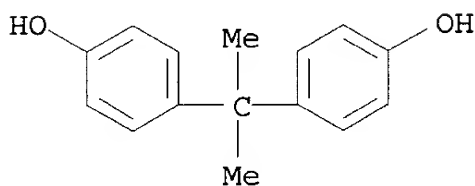
CM 8

CRN 85-42-7  
 CMF C8 H10 O3



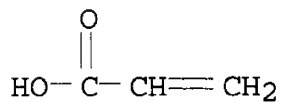
CM 9

CRN 80-05-7  
 CMF C15 H16 O2



CM 10

CRN 79-10-7  
 CMF C3 H4 O2



IC ICM G03F007-032

ICS C08G059-17; C08G059-18; G03F007-027; H05K003-28

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 Section cross-reference(s): 76

- ST **solder** resist rubber modified epoxy resin; flexible **printed circuit board**
- IT Nitrile rubber, preparation  
(carboxy-terminated, epoxy resin-modified; photosensitive resin compns. forming flexible **solder** resist films, cured films thereof, and flexible **circuit boards** using the same)
- IT **Printed circuit boards**  
**Solder** resists  
(photosensitive resin compns. forming flexible **solder** resist films, cured films thereof, and flexible **circuit boards** using the same)
- IT Epoxy resins, preparation  
(rubber-modified; photosensitive resin compns. forming flexible **solder** resist films, cured films thereof, and flexible **circuit boards** using the same)
- IT 9003-18-3P  
(nitrile rubber, carboxy-terminated, epoxy resin-modified; photosensitive resin compns. forming flexible **solder** resist films, cured films thereof, and flexible **circuit boards** using the same)
- IT 187158-13-0P 187158-14-1P  
(photosensitive resin compns. forming flexible **solder** resist films, cured films thereof, and flexible **circuit boards** using the same)
- L29 ANSWER 24 OF 47 HCA COPYRIGHT 2002 ACS
- 122:278159 Photosensitive thermosetting resin composition, manufacture of **solder** mask, and **printed circuit board**. Suzuki, Morio (Taiyo Ink Mfg Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 07020631 A2 19950124 Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-183568 19930630.
- AB The compn. contains an epoxy resin, photopolymn. initiator, a diluent, and a photosensitive resin, with acid value 40-120 mg-KOH/g, obtained by treating a copolymer of a primary OH-contg. hydroxyalkyl (meth)acrylate, an alkyl (meth)acrylate, and a glycidyl (meth)acrylate with (meth)acrylic acid and then with a polybasic acid anhydride. The **solder** mask is manufd. by applying the compn. on a **printed circuit board**, drying, selectively irradiating with active light beam **via** a patterned photomask, developing the unexposed part with a dild. alkali aq. soln., and heating to cure. The **printed circuit board** has the patterned **solder** mask. The compn. showed good chem. resistance and adhesion.
- IT 162706-31-2P  
(photosensitive thermosetting acrylic polymer-epoxy resin blend for **solder** resist and **printed circuit board**)
- RN 162706-31-2 HCA
- CN 2-Propenoic acid, 2-[[3-[(1-oxo-2-propenyl)oxy]-2,2-bis[[[(1-oxo-2-propenyl)oxy)methyl]propoxy)methyl]-2-[[[(1-oxo-2-propenyl)oxy)methyl]-1,3-propanediyl ester, polymer with

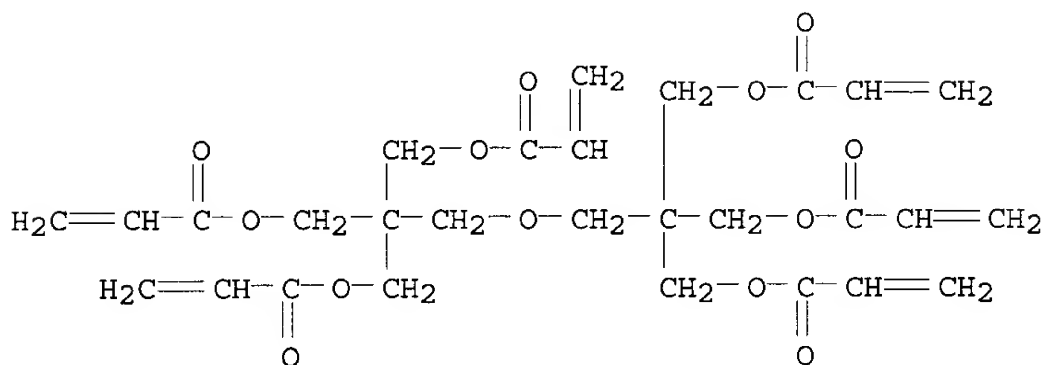


1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione  
(9CI) (CA INDEX NAME)

CM 1

CRN 29570-58-9

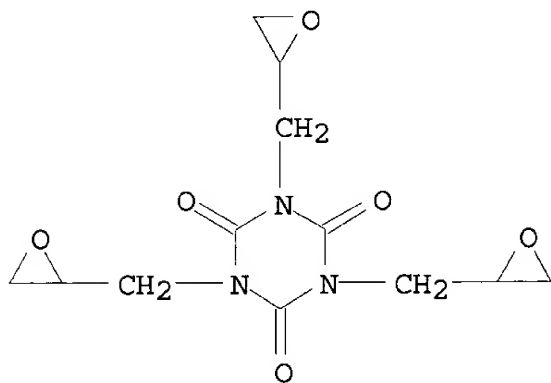
CMF C28 H34 O13



CM 2

CRN 2451-62-9

CMF C12 H15 N3 O6



IC ICM G03F007-027

ICS G03F007-028; G03F007-38; G03F007-40

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 76

ST photoresist acrylic polymer **printed circuit**;  
epoxy resin blend acrylic photoresist; **solder** resist  
acrylic polymer circuit; photosensitive thermosetting acrylic  
polymer

IT **El ctric circuits**

(photosensitive thermosetting acrylic polymer-epoxy resin blend

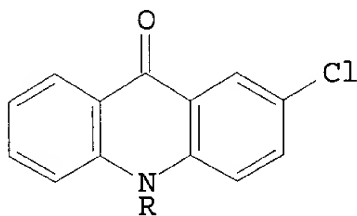
- for **solder** resist and **printed circuit board**)
- IT Epoxy resins, uses  
(photosensitive thermosetting acrylic polymer-epoxy resin blend for **solder** resist and **printed circuit board**)
- IT Resists  
(photo-, photosensitive thermosetting acrylic polymer-epoxy resin blend for **solder** resist and **printed circuit board**)
- IT 112-15-2, Carbitol acetate  
(diluent; photosensitive thermosetting acrylic polymer-epoxy resin blend for **solder** resist and **printed circuit board**)
- IT 71868-10-5, Irgacure 907  
(photopolymer. initiator; photosensitive thermosetting acrylic polymer-epoxy resin blend for **solder** resist and **printed circuit board**)
- IT 162706-29-8P 162706-30-1P 162706-31-2P  
(photosensitive thermosetting acrylic polymer-epoxy resin blend for **solder** resist and **printed circuit board**)

L29 ANSWER 34 OF 47 HCA COPYRIGHT 2002 ACS

115:18623 Photosensitive composition, photosensitive laminate, and manufacture of **printed circuit boards**.

Fujii, Tadashi; Tsuchiya, Katsunori; Fujita, Eiji; Tsukada, Katsushige (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 02305807 A2 19901219 Heisei, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-127673 19890519.

GI



- AB The title compn. forming sharp **solder** resist patterns with good **solder** heat resistance in **printed circuit board** manuf. comprises a compd. contg.  
.gtoreq.1 ethylenically unsatd. group, sensitizer and/or sensitizer systems generating free radical by active light, such as 2-methyl-1-[4-(methylthio)phenyl]-2-morpholinopropanone-1 and 4,4'-bis(diethylamino)benzophenone, and acridone compd. I (R = H, alkyl, alkoxy).
- IT 28825-96-9, TEPIC-G

(**solder** resists contg., for **printed circuit** manuf., photosensitizers for)

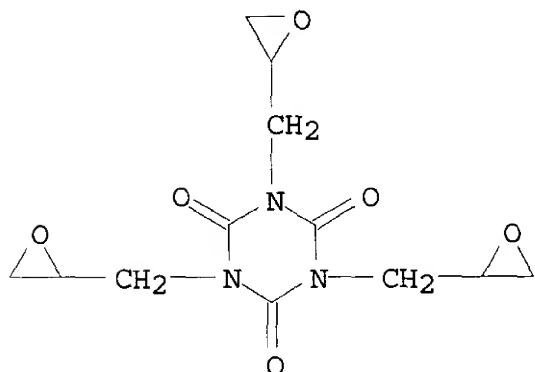
RN 28825-96-9 HCA

CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



IC ICM C08F002-50

ICS G03F007-004; H05K003-28

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 76

ST photoresist sensitizer **printed circuit board**; acridone photosensitizer photoresist; benzophenone photosensitizer photoresist; morpholinopropanone photosensitizer photoresist

IT **Electric circuits**

(polymeric, photosensitizers for)

IT Epoxy resins, uses and miscellaneous  
(**solder** resists contg., for **printed circuit** manuf., photosensitizers for)

IT Urethane polymers, uses and miscellaneous  
(aliph., **solder** resists contg., for **printed circuit** manuf., photosensitizers for)

IT Crosslinking catalysts  
(photochem., for **solder** resists, in **printed circuit** manuf.)

IT Resists  
(**solder**, polymeric **solder** resists for, photosensitizers for)

IT 90-93-7, 4,4'-Bis(diethylamino)benzophenone 119-61-9,  
Benzophenone, uses and miscellaneous 150-76-5 548-62-9, Crystal  
Violet 7497-52-1, 2-Chloroacridone 71868-10-5 82612-95-1,  
Isoamyl dimethylaminobenzoate 82799-44-8, 2,4-Diethylthioxanthone

128420-54-2, 10-Butyl-2-chloroacridone  
(photosensitizers contg., for polymeric **sold r** resists  
in **printed circuit** manuf.)

IT 79-10-7, 2-Propenoic acid, uses and miscellaneous 818-61-1  
15625-89-5 24979-70-2, Poly(4-hydroxystyrene) **28825-96-9**  
, TEPIC-G 30674-80-7, Isocyanatoethyl methacrylate 65697-12-3,  
Methyl methacrylate-methacrylic acid-tetrahydrofurfuryl methacrylate  
copolymer 71343-77-6, EOCN 102 100102-23-6  
(**solder** resists contg., for **printed**  
**circuit** manuf., photosensitizers for)

L29 ANSWER 38 OF 47 HCA COPYRIGHT 2002 ACS

112:207947 Production of **printed circuit**  
**board**. Tsuchiya, Katsunori; Fujii, Tadashi; Tsukada,  
Katsushige; Sugasawa, Noboru; Hayashi, Nobuyuki (Hitachi Chemical  
Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01193738 A2 19890803  
Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
1988-18136 19880128.

AB A **printed circuit board** is produced by  
coating a **printed circuit board**  
substrate with a photoresist compn. comprising a polymer resin  
binder which is sol. in an aq. alkali soln. but insol. in water, an  
epoxy group-contg. unsatd. compd. obtained by the addn. of  
triglycidyl isocyanurate to an unsatd. monocarboxylic acid in the  
0.3-0.9 acid equiv./epoxy equiv. ratio, and a photosensitizer which  
releases free radicals upon irradiation with actinic radiation,  
patternwise expressing to form a photohardened protective film, and  
depositing a **solder** at regions not bearing the protective  
film.

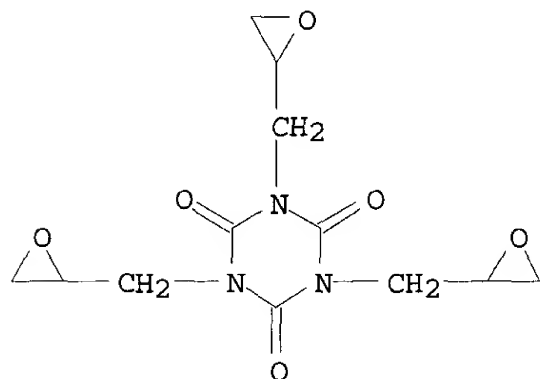
IT **28825-96-9**  
(reaction of, for producing epoxy group-contg. unsatd. compd. for  
photoresists)

RN 28825-96-9 HCA  
CN 1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-tris(oxiranylmethyl)-,  
homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2451-62-9

CMF C12 H15 N3 O6



- IC ICM G03C011-00  
ICS G03C001-68; G03C001-71
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 76
- ST **printed circuit board** prodn;  
photoresist **printed circuit board**;  
**solder printed circuit board**
- IT **Electric circuits**  
(**printed**, prodn. of, photoresists for)
- IT 79-10-7, Acrylic acid, reactions **28825-96-9**  
(reaction of, for producing epoxy group-contg. unsatd. compd. for photoresists)

L29 ANSWER 47 OF 47 HCA COPYRIGHT 2002 ACS

97:56857 Flexible **boards** for **printed**

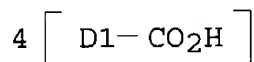
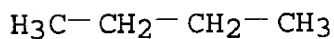
**circuits**. (Nitto Electric Industrial Co., Ltd., Japan).

Jpn. Tokkyo Koho JP 57004115 B4 19820125 Showa, 8 pp. (Japanese).

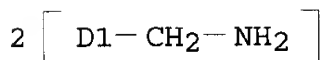
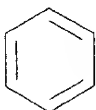
CODEN: JAXXAD. APPLICATION: JP 1976-58162 19760519.

- AB Powd. polyester imides (functional group content 1.0-4.0 mequiv./g, softening temp. 50-150.degree.) contg. a crosslinking agent are coated on a metal foil and melt-cured to give flexible **boards** for **printed circuits**. Thus, imide acid from 1 mol diaminodiphenylmethane and 1 mol trimellitic anhydride 546, ethylene glycol 186, di-Me terephthalate 194, and glycerol 92 g were polymd. in the presence of Ti(OBu)<sub>4</sub> to give a poly(ester imide) polyol (I) [31216-20-3] having softening temp. 97.degree. and OH value 2.1 mequiv/g. A powd. compn. from I 150, benzophenonetetracarboxylic acid [50986-44-2] 18.7, Ti(OBu)<sub>4</sub> 0.5, and Modaflow 0.5 part was electrostatically coated to a thickness of 60 .mu. on a 35-.mu. Cu foil and cured at 200.degree. for 30 min to give a flexible laminate with insulation resistance 6 .times. 10<sup>12</sup> .OMEGA., vol. resistance 8 .times. 10<sup>15</sup> .OMEGA.-cm, 180.degree. peel strength 1.6 kg/cm, flexibility (IPC-FC-240) 110, **solder** heat resistance (260.degree.) >10 s, and moisture absorption (JIS C 6481) 0.3%, compared with 0.3 .times. 10<sup>12</sup> .OMEGA., 10<sup>15</sup> .OMEGA.-cm, 1.3 kg/cm, 150, <10 s (shrinkage), and 0.8%, resp., for a polyester

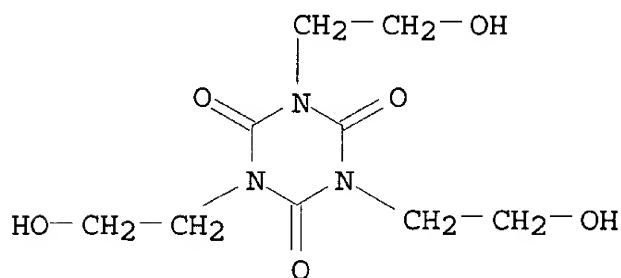
IT film laminate.  
82511-95-3  
(flexible printed circuit board  
manuf. from copper foil and, crosslinking agents for)  
RN 82511-95-3 HCA  
CN Butanetetracarboxylic acid, polymer with benzenedimethanamine,  
1,2-ethanediol and 1,3,5-tris(2-hydroxyethyl)-1,3,5-triazine-  
2,4,6(1H,3H,5H)-trione (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 51156-90-2  
CMF C8 H10 O8  
CCI IDS  
CDES 8:ID



CM 2  
  
CRN 26603-36-1  
CMF C8 H12 N2  
CCI IDS  
CDES 8:ID



CM 3  
  
CRN 839-90-7  
CMF C9 H15 N3 O6



CM 4

CRN 107-21-1

CMF C2 H6 O2

HO-CH<sub>2</sub>-CH<sub>2</sub>-OH

- IC H05K001-03
- CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 76
- ST polyester imide flexible **circuit board**;  
polyimide ester flexible **circuit board**;  
crosslinker benzophenonetetracarboxylic acid polyester imide;  
**printed circuit board** manuf
- IT Epoxy resins, uses and miscellaneous  
(crosslinking agents, for poly(ester imides), in flexible  
**printed circuit board** manuf.)
- IT Crosslinking agents  
(for poly(ester imides), in flexible **printed circuit board** manuf.)
- IT Polyimides, uses and miscellaneous  
(polyester-, flexible **printed circuit board** manuf. from copper foil and, crosslinking agents for)
- IT Polyesters, uses and miscellaneous  
(polyimide-, flexible **printed circuit board** manuf. from copper foil and, crosslinking agents for)
- IT **Electric circuits**  
(**printed, boards**, flexible, manuf. of, from poly(ester imides) and copper foil, crosslinking agents for)
- IT 839-90-7 25068-38-6 37808-10-9 50986-44-2  
(crosslinking agents, for poly(ester imides), in flexible  
**printed circuit board** manuf.)
- IT 31216-20-3 82511-94-2 82511-95-3  
(flexible **printed circuit board** manuf. from copper foil and, crosslinking agents for)
- IT 7440-50-8P, uses and miscellaneous

(foil, flexible **printed circuit board**  
manuf. from poly(ester imides) and, crosslinking agents for)